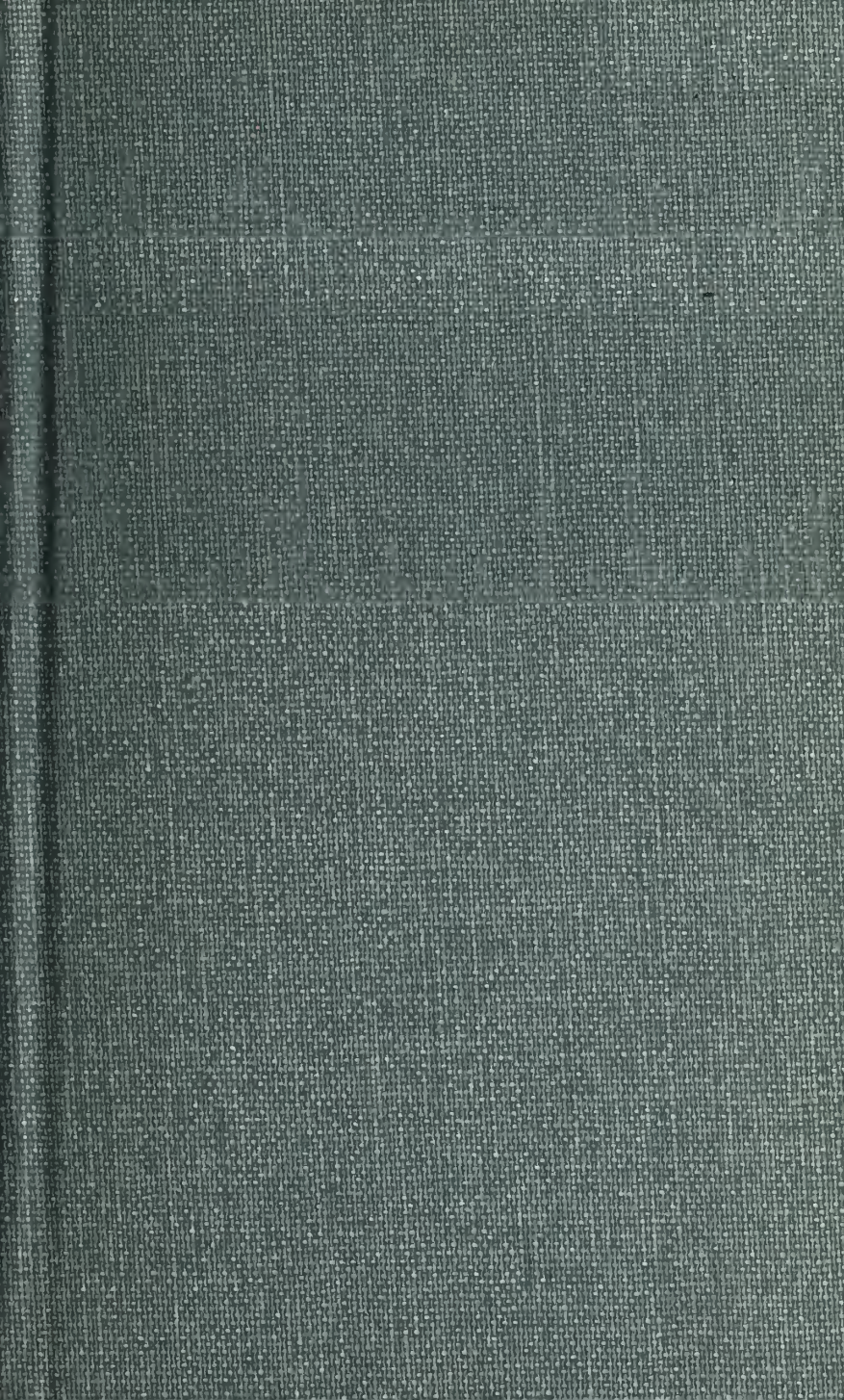










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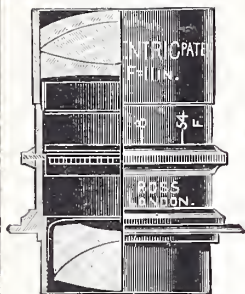
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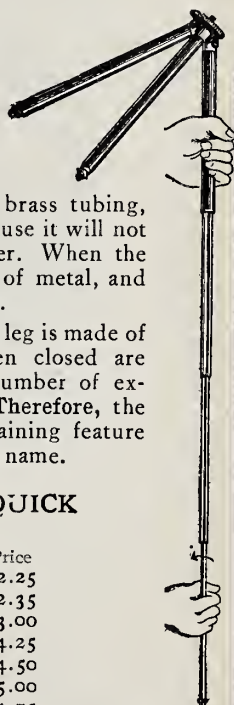
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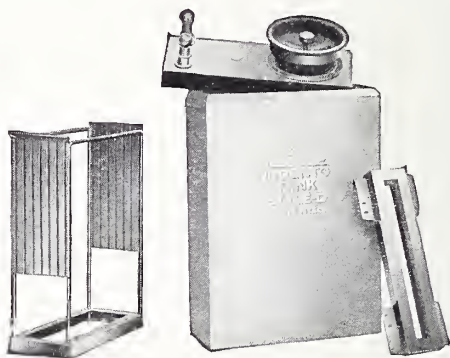
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Photographing flower compositions indoors; choice of apparatus; plates and color filter; illuminating the subject; backgrounds and their use; vases and other receptacles. Preparing the subject; arrangement and focusing; lighting for special effects. Exposure fully dealt with. Developers and development, with formulæ. The use of a ray filter.

Photographing flowers "life" size. A vertical camera stand described, with diagrams. How to manage troublesome reflections. A handy focusing device. The problem of temperature. Lighting life-size subjects. Exposure and development. Some personal experiences. Suggested subjects.

Photographing flowers in their natural haunts. Tripod, camera and lens. Backing plates. Weather conditions. Outdoor illumination and how to control it. Wind.

Photographing trees and decorative natural forms, suggestions of subjects and treatment.

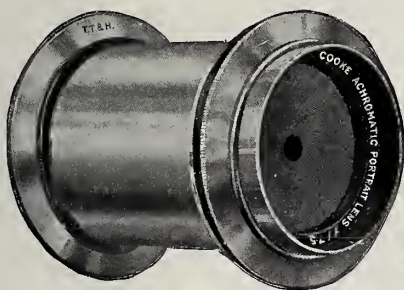
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The reason for the above assertion is of a great deal of importance to the amateur who does his own finishing, as well as to the one who has the professional finisher do his work for him.

The position of the professional finisher is rather unique from the fact that he has but one thing to build his reputation upon, and that is the quality of his prints. To be sure, he must do good developing, but he does not make the negatives and must take them as they come from the amateur and produce the best possible prints from them. This he does on the paper—the one paper—that is made with special regard to the requirements of the average amateur negative—Velox.

If professional papers were suited to amateur work, the professional finisher would probably use them, but they are not. Professional papers are in a class by themselves and the professional photographer makes his negatives to suit that class of paper. The amateur, on the other hand, makes his negatives under all sorts and conditions of light and shade, which he is unable to alter; makes his exposures accordingly, and though the resulting negatives are of varying degrees of contrast, and they must of necessity be, there is a grade of Velox that will suit each one, and the resulting Velox print if properly made, is sure to be the best possible print from that negative.

It is quite plain then that Velox is the best paper for the amateur to use, because the finisher, whose reputation is based on the quality of his prints, finds it the best paper for his use, but there is still another point of view. If you send your work to a finisher, insist that he make your prints on Velox. There's only one possible reason for using anything else—the price.

CLOSE TO NATURE

I shall never forget a trip made to the woods with a friend of mine, one beautiful spring day. I wanted a few negatives of the first spring flowers, while he, having nothing better to do, consented to go along for the exercise and air, though he did take his camera just to be sociable and, as he said, to use if he saw anything really worth while.

Spring flowers didn't seem to be worth while in his estimation, and he laughed at my Portrait Attachment and the stick I carried with

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Rose Mallow, made at 2 feet 8 inches, with Portrait Attachment

at short range, the Portrait Attachment allowing me to work at two feet, eight inches, and as I expected, my friend did not fail to see the beauty of that hillside of bloom. His camera did not allow him to work as close as he might have wished, but he was soon busy clearing a tiny stream of leaves and twigs that he might get a better view of the little water fall that was to be a part of his spring landscape.

By stopping down his lens to get extreme sharpness and making

the distances notched on it, but I was glad to have his company, so said nothing. He was the first to enthuse over the landscape as we came to the shore of a beautiful lake, three stately trees with a background of fleecy clouds, and a graceful curve in the shoreline taking his fancy. The negative was made, and the tramp continued along a beaten path to the spot where I expected to find the hillside a mass of bloom, and I was not to be disappointed. My Kodak was soon working



Rhododendrons, made at 2 feet 8 inches, with Portrait Attachment

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Shad Tree Blossoms, made at 2 feet 8 inches, with
Portrait Attachment

an enlargement from his plate, he was able to show the flowers much as my Kodak and Portrait Attachment had seen them, but it was a roundabout way, as he afterward admitted.

However, he enthused over my intimate little studies of spring flowers, and no doubt has made many of them

himself since that time, for he has added a Kodak and Portrait Attachment to his outfit, and is very enthusiastic over the decorative value of flower studies where nature is the landscape gardener.

I find it very convenient to carry a stick or cane on which I have cut notches to indicate the distances at which the object must be from the Portrait Attachment, which is simply slipped over the lens of the Kodak.

As will be seen by the illustrations, these little nature studies not only add variety to an album of Kodak pictures, but each one is interesting in itself, and recalls the day spent in the open as nothing else can do.

If you are a lover of birds or animals, and have access to a zoölogical garden, try using a Portrait Attachment on your Kodak, where it is possible to get within three and one-half feet of the object. While the Portrait Attachment is primarily intended for portraiture, it may be used in photographing any small object where there is an advantage in getting it at close range.

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Dissolving these chemicals in water, according to the instructions, a fixing bath is formed which is ideal for Kodak films, plates, Velox or Bromide papers. When properly used, this bath prevents stains, hardens the film and fixes the negatives or print all in one operation.

It is advisable to use a good quantity of this bath in a large tray, as it can be poured into a jar after use and used several times. A good plan is to make a pound of the fixing powder into solution, a pound making 64 ounces or two quarts. This solution after having been thoroughly mixed may be kept in a couple of fruit jars. The half-pound package makes 32 ounces or one quart of solution. As a rough guide, 16 ounces of solution will fix six dozen 4 x 5 prints, and in the case of negatives, the bath may be used until it becomes discolored or fixing becomes noticeably slower.

In fixing Velox, as with all developing papers, it is advisable to use a larger tray for fixing than that used for developing, and a larger quantity of solution, as the prints should not be allowed to lie one on top of the other during the first few minutes of fixing—in fact they should be moved about occasionally during the entire time they are in the fixing bath, and this is best accomplished in a fairly large tray.

Yellow spots and stains on Velox and Bromide papers are generally caused by traces of developer left in the print, oxidizing and discoloring by being exposed to the air when the print is placed in the fixing bath. This is usually due to the print not being placed entirely under the fixing solution or floating to the surface after it has been placed under, and so being exposed to the air with the result just mentioned.

A good plan is to use a wooden paddle to pat the print under the fixing solution, or a stick with a tuft of cotton tied to the end, which may be used to press the print under the solution and hold it there. A fresh tuft of cotton should be used each time this method is used.

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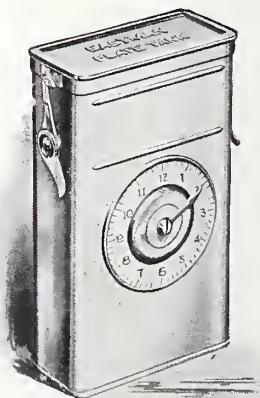
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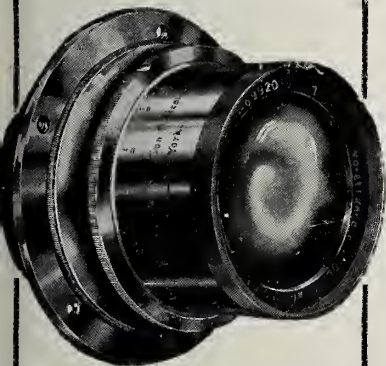
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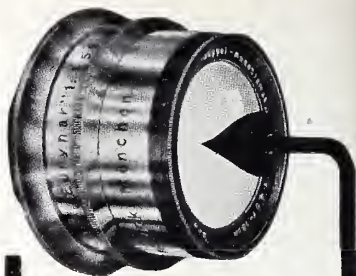
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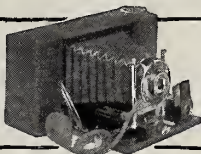
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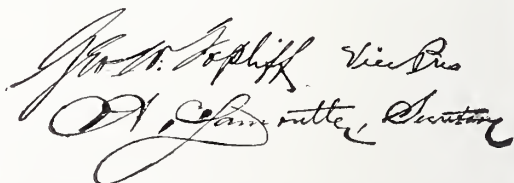
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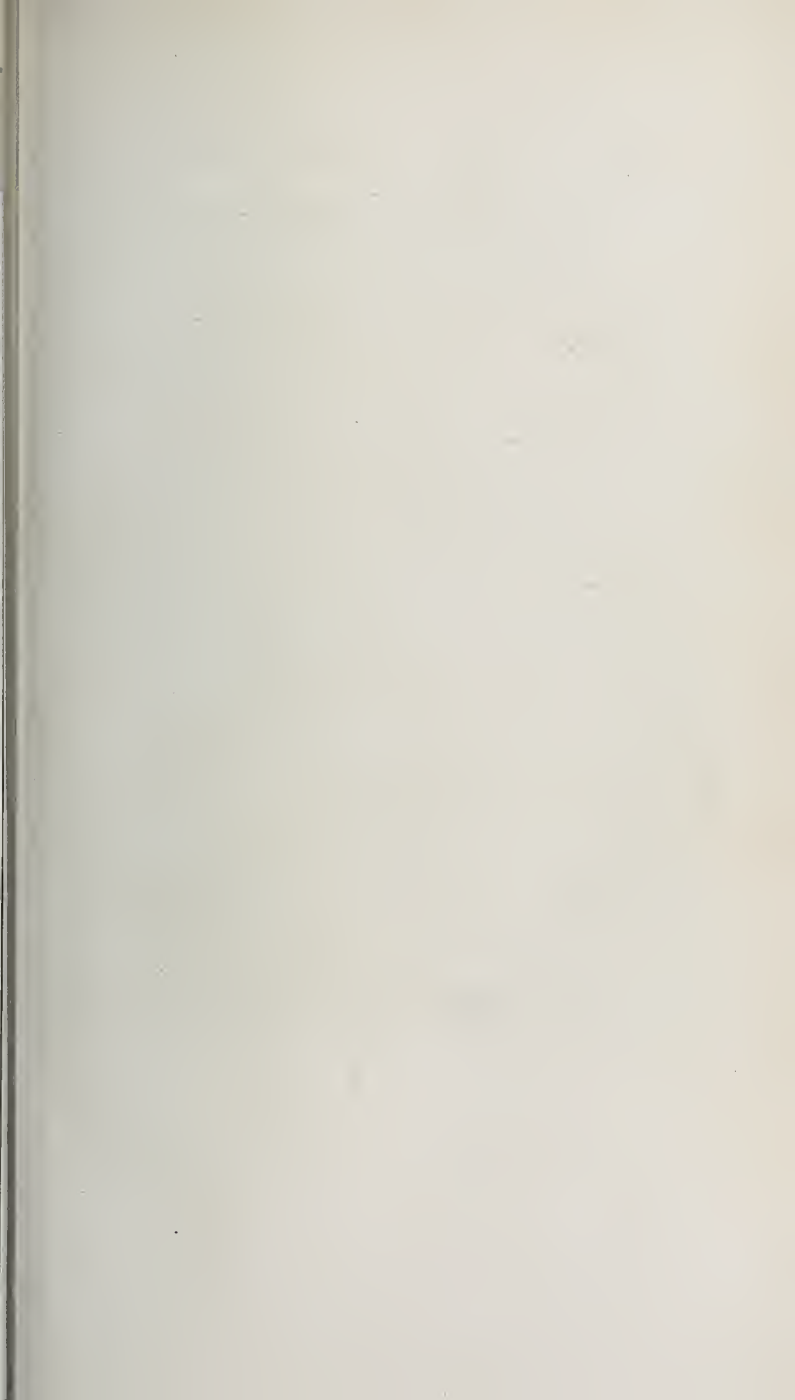
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The Photo-Miniature

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EDITED BY JOHN A. TENNANT

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Number 109

Drapery and Accessories

The way of the photographic portraitist is undeniably hard and beset with difficulties. Unlike the painter, who has hours wherein to study his sitter, and assemble in carefully chosen lines and masses of light and shade and color those vital facts which make for the most favorable characterization, the photographer must devise or seize a dozen different arrangements of his subject within a few hurried minutes immediately following his first glimpse of the sitter. In that brief encounter he must secure likeness, a happily characteristic arrangement of the subject within the picture space, and a scheme of lighting which gives harmonious expression to what face and pose tell us of the sitter. It is remarkable, in the circumstances, that the average photographic portrait is so successful!

Of these three elements of portraiture, the composition or arrangement of the figure is undoubtedly the most difficult to manage. Likeness depends largely on the vitality of the sitter; on his or her ability to control the mood of the moment and express the normal or ideal self. Lighting has become, in no small measure, a matter of choice among conventionalized schemes. The pose of the figure and its arrangement within the picture space is not so simple a detail. There comes first the figure, then the management of the drapery belonging to the subject or introduced for its enrichment and, finally, the placing of unavoidable or desirable accessories.

In previous numbers of THE PHOTO-MINIATURE

series we have explained and illustrated the broad essentials of portraiture (THE PHOTO-MINIATURE No. 95), and the pose (THE PHOTO-MINIATURE No. 2, now out of print). This monograph is concerned with drapery and accessories in portraiture; how important they are as aids in pictorial expression; how they enhance the qualities of a picture; and how to utilize their wide range of possibilities in every-day work. The subject has been largely neglected, and its discussion cannot but prove helpful to professional and amateur workers in portraiture with the camera. The monograph is written by one peculiarly fitted to deal with so thorny a subject in an interesting and profitable way. With its abundant illustrations, it offers an intelligent survey of all that can be said from the photographer's viewpoint. Looking over its pages as they go to press, I feel sure that the reader will agree with me that it is a useful addition to the meager literature of portraiture.—EDITOR.

Drapery, which is a matter of costume, concerns only one figure. With each figure it is a thing complete in itself. Hence, I shall demonstrate my observations almost entirely by single figures. Accessories, on the other hand, are inanimate objects and could be explained by groups as well as by single figures. But I prefer the single figure as it is less confusing, and anyone who has mastered the placing of accessories in single-figure compositions can readily apply his knowledge in handling more elaborate groups.

As used in art, drapery means a textile fabric used as a garment or for decorative purposes upon the human body, especially when hung loosely or distributed in folds. It has its historical aspect and a peculiarly involved technique of its own, as well as its limited modern application. About its history and its uses in painting and sculpture I will be as brief as possible, our interest centering around its use in photography today.

An accessory in figure composition is any additional or contributory object which helps to beautify the principal idea or subject of the picture. I will take up the most frequently used accessories, such as flowers, hats,

fans, shawls, boas, the trains of women's gowns, musical instruments, furniture and the walls of interiors, explaining in each case their special significance and usefulness to the picture-maker.

Drapery reached its highest development and perfection of use among the Greeks and Romans. With the exception of the Orientals and a few savage tribes, these were the only nations who used drapery exclusively as clothing. They were ignorant of any specially made garments such as the suits and gowns which we use today. They draped their dresses on their bodies, and with such skill and variety of effect that we, living in a tailor-made age, gasp with wonder at the freedom and ingenuity of their devices.

Winchellmann, the great authority on Greek art, called drapery an echo of the human body. It is an excellent definition. For the beauty of drapery, whether it looks well on a person or not, depends entirely on the wearer. The modern suit or gown is a regulated affair, its shape and form being previously determined by fashion and the tailor. A piece of drapery, on the other hand, has no form until it is applied to the body, the particular shape of the wearer creating the form. Among those peoples who used drapery, it was considered an art to put it on correctly; it was a factor in public education, and its proper application was considered one of the most convincing proofs of culture, taste and good breeding in the wearer.

It is not my purpose to enter here
A Warning into the intricacies of the art of draping the figure, as practised by the ancients. Those who are interested in this may find many manuals devoted to the subject, such as Rhead's "Treatment of Drapery in Art" (London: Bell, 1904). But I mention the matter simply to warn photographers against the idea that any piece of cheese-cloth or fabric loosely folded about a figure can pass as drapery in picture-making. Our modern pictorialists continually try to imitate the effects of ancient drapery, without having the slightest notion of the right material, or the correct shapes, or how drapery was worn. The ancients got their artistic effects by observation, based on the expe-

rience of an entire nation for centuries. All we can do today is to reproduce the actual garments and practice with them on our own persons until we arrive at an intelligent knowledge of their use. This was well understood by the old masters in painting, who, when the representation of drapery was in question, went directly to the study of Greek and Roman dress for their information and ideals.

The Function of Drapery As far as the portraitist of today is concerned, we may profitably take up a

few laws or principles governing the use of drapery, which every picture-maker should know. Drapery should never obscure or obliterate the form of the body underneath. Nor can it be rendered vaguely. The charm of drapery is its clearness and precision of line. There is no room for blurred effects. It should accentuate the contour and modeling of the body, as secured in the pose, and yet not show any part obtrusively or too clearly. The lines and forms of the body should rather be enveloped than hidden by the lines and planes of the drapery, but the latter should always remain dependent on the former.

Its Fall and Flow The fall and flow of drapery and the beauty of its effect are largely dependent on the distribution of lines. The lead-

ing lines should have a bold sweep to them, and the longer they are the more effective they generally are. Notice the line of Christ's mantle in Fig. 7. Drapery changes its expression according to the character of the lines which dominate it. They can either be straight, curved or undulating. The straight line gives dignity to the human form. It represents the rectangular idea and works with preference in parallel and slightly diagonal lines that do not meet. It has the advantage of clarity and precision. The curved line with a tendency towards circular and elliptical contours expresses a finer rhythm, more brilliancy and softness, as all round forms do. It has more grace and refinement. The third, the undulating line, with its apparently lawless flow, now overlapping, here interlacing and at times showing complete fusion, is the vehicle of animated expression. It offers richness and variety, but rarely



2



5



3



4

2. Study for Dante (Rossetti)
3. The Emperor Augustus
4. Nike of Samothrace
5. Chalk Sketch (Neville Lytton)



6. Albrecht Dürer (Makart)
 7. Christ and the Samaritan Woman (Fühlich)

ruggedness, strength or equipose such as the curved line gives with its longer sweep. Of course, all the lines frequently appear in one piece of drapery, but it is always one of the three which dominates the situation. And all the minor or less prominent lines must be subordinated to the principal ones.

The direction of the lines is determined by the starting point and the construction of the particular part of the body they deal with. There are three directions in which the lines of drapery may run. They will either cross the body at a right angle, diagonally, or run parallel with the contours of a limb or follow the undulations of the form, as in Fig: 4. The starting points marked X in Figs. 2, 3 and 5 are generally furnished by the prominent and protuding forms of the body, in particular the knee, ankle, hip, breast, shoulder, elbow and hand. In classic arrangements of drapery they generally proceed from one part to another. Fig. 5 furnishes an excellent example of this. On both arms the lines run from shoulder to elbow, and in the lower part of the drapery from the two knees to the protruding foot. The lines across the chest pass from the shoulder to the waist. Only the part marked O is muddled up and meaningless.

It is the result of carelessness. There was no reason why this passage could not have been handled with equal skill as in the female figure of Fig. 7, where the lines run from hip to hip, from hip to knee, from knee to knee and down to the foot. The arrangement has the merit of being simple and clear, but it is a trifle too plain and academic. It lacks naturalness.

The Augustus statue, Fig. 3, shows a more elaborate and masterly treatment. Notice the starting points and how the lines from the waist to the left shoulder have an upward, and those from the right shoulder to the hand, a downward tendency. The lower part in particular is well managed. The right leg is dominated by a diagonal line arrangement that in a few bold sweeps covers the entire area from the waist-line to the feet, while the drapery on the left leg falls down in long undulating

The Statue of
the Emperor

folds of a parallel tendency, allowing a glimpse of the knee which gives support to the figure.

A Figure from the Parthenon This parallel tendency of folds is of Greek origin, and is one of the principal characteristics of great drapery. The lines radiate from the shoulders or waist-line at slightly differentiated angles, and rarely meet or get mixed up with each other. Their undulations are governed by the convex planes of the body, while the concave planes are hidden. Fig. 4 is a study of curves, the undulations of the drapery follow the body very closely, possibly as closely as is possible without giving an effect of nudity. The lines are of exquisite variety; there is not a single discord. As an exploitation of parallel curves this example can hardly be excelled.

Roman Drapery Roman drapery is less subtle than that of the Greeks. It has deeper folds and consequently stronger lines, producing those obtuse-angled planes that we notice in Fig. 3, as well as a repetition of equilateral triangles. This tendency for triangular planes and the introduction of long curves and circular lines are the earmarks of all Roman drapery.

In later times, drapery never reached the same stage of purity and strength. With the Christian era it became modified, and the introduction of distinctive costumes gradually reduced it to a conventionalized play of lines and planes, until we reach the severity and ugliness of modern dress, with drapery in the true sense rarely available and almost non-existent.

Sleeves and Fold Arrangements The old masters were very fond of drapery effects, but they were limited by the costumes of their times, mostly independent of the human body. The shirt was ruffled and gathered, and the bodice was made corset-like, to produce a narrow waist. Of course, there is the wide and puffy sleeve; but this is only the embellishment of a gown and scarcely influenced the form of the arm. Sleeves of a certain fulness permit arrangements such as we have in Figs. 5, 6 and 9, but, as soon as it became too large and heavy, it could be controlled by only its own outline and the material of which it

was made, not by the form of the arm. The result, in such cases, will be large and unwieldy planes with a confusion of folds. A tight sleeve cannot be draped, although it may, if of soft and glossy material, adapt itself to some manipulation. The sleeves in Hals' "Merchant," Fig. 14, and the satin suit of Gainsborough's "Blue Boy," Fig. 21, are excellent arrangements of minute folds. Decided lines, however, are absent. No line in the drapery is so prominent as the outline. There should be a distinct and prominent line scheme in the management of the folds and planes before it can be called drapery.

Dürer was one of the few who believed **Dürer's Line** in a careful accentuation of form, but his lines were peculiarly straight and angular. And straight or angular lines cannot emphasize the supple roundness of the human body to the best advantage. A fair reproduction of Dürer's style is seen in Fig. 6, facing page 9.

The English School Drapery became more and more artificial as time passed on. With the English school, as we see in Fig. 8, it was little less than the picturesque arrangement of a gown. The lines are graceful, but absolutely meaningless. The folds merely cover and suggest nothing, and the queer thing about it is that any more decided emphasis of the human form would be offensive. Even the little that is seen of the left leg in Fig. 8 does not impress one as particularly delicate. The trouble is that drapery and dress are two things different and distinct. Pure drapery will lend itself only to ideal figure-representation. A dress, no matter how picturesque, is a realistic every-day affair, and drapery at its best can furnish only a fragmentary effect.

A Modern Revival The Pre-Raphaelite painters gave us the most individual and artistic revival of pure drapery in modern art. It approaches the Greek in subtlety of line (see Fig. 9). But the planes are more crumpled. Cheese-cloth and thin silken fabrics are probably the best materials to reproduce these crushed effects. The exponents of this school proceeded in ancient fashion, taking their art

very seriously. They selected starting points, as Rossetti in his Dante study (Fig. 2), and followed the planes of the body, although with some modification. The folds in Fig. 2 are carefully drawn and balanced, but obscure rather than accentuate the form of the back. The flow of lines in Fig. 9 is exceedingly well done.

An Example by Kaulbach The search for beautiful motifs of drapery should be a determinative factor of artistic activity with the portraitist, and skill in its handling cannot but enhance his reputation in his profession. Of course, it is largely a matter of individuality. If one is a realist, one no doubt will prefer to master the successful treatment of contemporary costume; but, if one indulges in occasional excursions into the imaginary realms, he will gladly substitute the charming effects of antique drapery for the severities of the costumes of today. Fig. 10, by the German painter Kaulbach, is a fine example of what can be accomplished in approaching these problems of harmony and elegance which the sculptors of antiquity so matchlessly solved. The zig-zag flow of the drapery from the right shoulder around the bust to the middle of the left arm is exquisitely arranged. Also the diagonal line from the throat to the left hip is well thought out. The folds are rather flat and need some variety of direction. The dark drapery is heavy and angular, and by its shape and color furnishes a strong contrast to the gentle, softly-clinging folds about the figure.

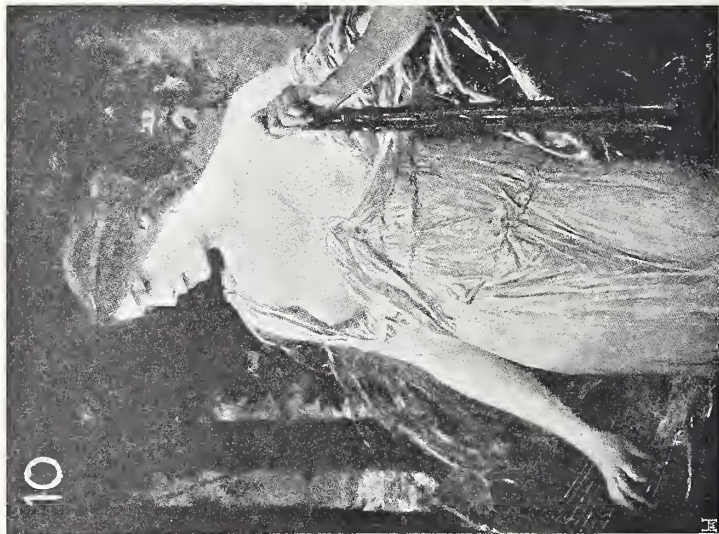
Modern Clothes In modern clothes there is little chance for drapery effects. Men's garb is almost completely free from any superfluity of fabric, unless we take such subjects as college men in gowns, a priest in his vestments, or a judge in his robes, and in these instances the opportunity for any esthetic distribution of folds is slight. Herkomer, in his portrait of Lord James Ball, Fig. 11, made a bold attempt at it; but official robes have to be represented as they are: there is not much room for freedom in treatment. Sometimes a man's overcoat, raincoat or motor apparel will permit of manipulation, but these can hardly be called draperies. Except on fancy-dress occasions, men no longer wear mantles that can be fes-



8. Susanne Randolph (Copley)



9. Proserpina (Rossetti)



10. Musica (Kaulbach)



11. Lord James Ball (Herkomer)

tooned around the body, as in Franz Hals' time (see Fig. 12.) Our tailor-made suits are too scant in material, too severely ironed out and heavy to permit of pictorial effects. Similarly, in women's dress in these days of tight-fitting gowns, there is but slight chance for drapery effects except where trains are concerned: A directoire gown that is high-waisted and hung loosely to the ground, as in Fig. 13, can be effectively draped. The opera-cloak, shawl, wrapper and kimono are about the only loose pieces of women's dress which now-a-days lend themselves to artistic treatment, and these rarely come to the studio of the portraitist.

Theatrical-costume pictures come under a different classification, but here we are too much dependent on the actors and actresses and their ideas of the "part" or "attitude" to have much freedom in picture-making. If any artistic effort is made with such material, the photographer must have a preconceived idea, carefully studied out, and then select the right model and the right costume, or the result will be problematical.

Costume Effects Comparatively few costumes lend themselves to the exploitation of drapery effects after the historical manner which we have discussed. Fig. 15 is a fine example; Figs. 20 and 21 are also excellent. But how rarely are such costumes available! The majority of national and peasant costumes today are too much like dress. They may at times be picturesque, but they have little in common with drapery from our point of view here. The one exception is in the Oriental costume, which has remained unchanged through the centuries (see Fig. 19). It hides the body, but is full of flow and pleasing curves. This example might easily be reproduced photographically, but it is a little too heavy and straight. Munkacsy's figure of Caiphas (Fig. 16) is a thoroughly good example of the Oriental costume. The lines show great vigor, and the planes, although exceedingly simple, help the expression of character in the figure.

Costume, however, is a dangerous field for experiment. It depends so much on the model employed. If the model is familiar with the costume, and can impersonate the character sufficiently well to resemble reality,

the result may be agreeable. But woe to all concerned if all the elements are not in keeping with each other. Take a good look at Fig. 18. Does the young lady convey any idea of Salammbo to you? It is nothing but a model wrapped in a piece of studio drapery.

Imaginative Work The fancy picture is the true domain of the photographer who inclines to drapery effects. By fancy pictures I mean compositions like Figs. 17, 22, 23, 24. If there be any chance for drapery, it is, at least in this work, under the control of the photographer. It was the photographer undoubtedly, who invented the peculiar piece of wearing apparel in Fig. 24. In historical or any traditional costume this would be impossible. It permits no freedom of fancy.

A Modern Madonna A remarkable example of individual interpretation is seen in our frontispiece, "The Virgin," by Abbott H. Thayer. Can anything more wilful be imagined? Two children with their elder sister romp across the fields. No doubt you think that they are somewhat curiously draped. So they are, but it is not done in the amateurish way in which people who know little of classic arrangements may drape their subjects. This constitutes the principal charm of the picture. You may here say that I am going back on my previous insistence that a thorough knowledge of ancient drapery is essential to success in picture-making of this sort. This would be true if the painter had not thought out his scheme of drapery most carefully. He had the knowledge, but applied it with astonishing unconventionality and naturalness, while most painters do not seem able to improve upon classic tradition, or, in other words, to venture further than soulless imitation ending in failure.

Flowers as Accessories We can now take up the subject of accessories, which will involve an occasional return to the topic of draperies. Flowers represent probably the most popular accessory in modern single-figure composition. They always enhance a picture, no matter whether they are merely placed in the background or on a near-by table, as in Fig. 13, or used in a more important manner as in Figs.

20, 23, 24. An accessory is generally only a minor incident in a picture, although in rare instances it may become the chief motif. This is almost the case in Fig. 26, where the flowers add a decorative quality to the picture without which its charm would be wholly lacking. Here the flowers share the prominence given to the profile and the book, the three elements united making the interest of the composition. In Fig. 24 the flowers play a more important part. They furnish the part of pictorial interest, but they are so subordinated in tonal value, not merely to the face but also to the darker tones in the picture, that they are hardly noticed. This is as it should be. The picture was taken for the face and the draped figure, and the flowers were added simply as an embellishment.

Notes of Balance In Bulleid's "At the Temple Gate" (Fig. 20) the basket of flowers has a special significance. It helps to convey

the poetical idea of the composition: a young girl waiting at the gate of the temple to be admitted and to deposit her gift at the altar. To place a flower in the hand of a female figure is generally effective. We have an example worth noting in Fig. 19 where the flower adds a touch of contrast and helps in the expression of sentiment. Those who have at hand Holbein's well-known portrait of "George Gisse, Merchant" may gain another illustration of the use of flowers in portraiture. In this example, despite the amount of conspicuous detail in the composition, the long-stemmed carnations set against the figure idealize the representation and give a suggestion of culture and refinement to what would otherwise be but a prosaic portrait of an Augsburg merchant in his shop. (See Fig. 14.)

It is perhaps a little strange to introduce flowers in the portrait of a man. With most modern male figures it would suggest effeminacy and affectation; but there are times and subjects, as Holbein shows us, where it is altogether appropriate and desirable.

Flowers introduced in portraits of women as ornamentation of the hair, as in Fig. 18, never fail to produce a pleasing and decorative effect. This feature is the best part of the "Salamambo" picture.

**Books and
Letters**

The book is another favorite accessory. I think it comes second in popularity. When an operator is absolutely at a loss what to do with a sitter, he hands him a book. Alas! the device is utterly useless. A good picture cannot be made in such a haphazard way. There must be some good reason for introducing a book or letter, neither of them particularly attractive in shape or easily adaptable for our purpose, viz., to add pictorial quality to the picture or for the embellishment of the main motif. We have examples of the use of a book in Figs. 5 and 23. Rarely have I seen it so cleverly handled as in Fig. 25. The folded hands break its stiff, rectangular shape, and the dark plane serves as a connecting link between the dark masses of the hair and the lower right-hand corner. The arms assume a pyramidal shape, which is rare, and could be used more frequently with advantage in modern portraiture. We always like to see a novel arrangement. The usual way is to make the subject appear to be reading. This latter device is a reliable method of controlling the eyes, and the subject is pleasantly occupied with something, which often means a good deal in single-figure compositions. In Fig. 23, the book is well placed. Its white page and dark cover complement the face of "The Reader," as a small plane in opposition with a larger plane of the same tonality invariably does.

Another way to utilize books in portraiture is to pile them up about the sitter or on a table at his hand. This gives a suggestion of culture to the picture and may aid in indicating the avocation of the sitter. In a similar way the use of maps, charts, astronomical globes and the like is suggested when men of known eminence in the sciences are available as subjects.

**Professional
Traits
Recorded**

To suggest the profession of a sitter is always desirable where the photographer has freedom in his choice of an arrangement. It serves to lift the figure out of the realm of every-day portraiture. The proper accessory will generally suggest itself in such cases. I recall a successful portrait of a city editor "at the 'phone;" the introduction of a lens served a useful part



- 12. A Dutch Nobleman (Hals)
- 13. Lady Tying Her Bonnet (Guido Rey)
- 14. George Gisse (Holbein)



- 15. Portrait Group (Kaulbach)
- 16. Caiphas (Munkacsy)
- 17. Summertime (Wilson-Steer)
- 18. Salammbô (Frances B. Johnston)

in the picture of a well-known photographer; many instances of sculptors and painters portrayed with the tools of their art in hand will occur to the reader. Delaunay's portrait of the French comedy writer, Henri Meilhac (Fig. 26) offers an example worthy of note. The white sheets of paper here add a pictorial note of contrast. The composition gains in color and becomes more animated. In this particular case the three light planes are exceedingly well placed and balanced.

Soft and Stiff Hats The hat forms a rather important note in our apparel and in modern figure representation it is difficult to get along without it. I believe most operators wish they could. It is at its best a somewhat awkward and cumbersome adjunct, easily becomes obtrusive and does not readily lend itself to pictorial effects. In many instances the portrait of a man is not improved by the introduction of a hat. This applies especially in the case of the stiff hat, which is particularly unhandy and lacks attractiveness in shape and texture. The formal "top hat" and "derby" should always be avoided where this is possible. Where they must be included they call for clever handling, the outlines being merged in the background and the shape being vaguely indicated by the vertical streak of high-light. The only other method is to let the sitter carry the hat in his hand (I have seen some men do this gracefully), attempting to make the lines tell, and hiding part of the hat by placing it close to the figure, thus breaking the stiff parallelism of its lines and general rigidity of outline.

Interesting Shapes The soft or slouch hat is easier to manage. It is more pliable, the play of light and shade can be controlled, and the outlines afford more variety in line and shape. The Dutch painters treated the hat as an interesting shape against the background—as in Fig. 12. Besides, it furnished a decided contrast to the ample linen collars of the period, and threw the face into stronger relief by letting the rim cast a more or less transparent shadow on the forehead. If you show the entire hat—it matters little whether in profile or in full front view—it should be placed as near the top edge of the picture space as

possible. This improves the division of the background.

The three-quarter view of men's, as well as women's hats, is generally more picturesque in quality than the side of full front view and offers greater variety in shape and outline. It can also be twisted more readily into a mass having pictorial value, and in a way suggest the personality of the wearer.

The Hat as a Background The most profitable way, in my opinion, to utilize the hat, if large enough, is to make it serve as background pure and simple; with ladies' hats, as they are today, this offers no difficulty whatever. Whether this use of the hat will please the sitter, is another question. Ladies are usually proud of the "successful" hat and wish to show it in their pictures, i.e., the decoration rather than the wide brim alone. In such a case, where the lady insists on a picture of the hat rather than of herself, the wise portraitist will patiently indulge her whim, since the work is done to her order and at her expense. Carefully handled, however, the big hat forms many delightful combinations with a woman's hair and face, and pictorial portraits are easily secured when the photographer can follow his fancy with such favorable material at hand.

Generally speaking, it will require much tact and diplomacy to induce a lady to carry her hat in her hand or to lay it in her lap; but sometimes this device will make possible a portrait with more charm than can be had with the hat in its proper place on the head. I can recall several good compositions by Puyo, in which women's hats played an important part, although not worn on the head, but utilized as accessories in the hand or on a table.

Where the hat does not lend itself to pictorial advantage, persuade your fair sitter to lay it aside, on the ground that her hair is more beautiful (as it almost always is in fact). When this cannot be done, see if you cannot use it as a note of contrast with the face or other portion of the picture. Often the hat will be lighter or darker in color than the dress worn, so that with an appropriate lighting arrangement it can be made to take its proper place in the composition, as in Fig. 29. The

same can be observed in Fig. 30. If the face and hand were lighter, then the hat, veil and lace effect would have to be darker, to give the desired note of contrast. But there is a pleasing balance of planes and masses in the picture as it is.

Frequently the material employed in the making of a hat effects of itself decided notes of contrast, as we see in Fig. 31. This facilitates matters. It is beautiful in line, of graceful shape, and contains an equal amount of black and white in well-balanced distribution, which would in most instances produce a satisfactory result. Uniformity of tint in the hat and bust are apt to bring out the face more strongly, as in Figs. 17 and 30; but the effect is more monotonous than otherwise, as for instance in Fig. 30. Painters have frequently used the hat as a shadow-maker, but I do not advise this for photographic portraiture, as most people do not wish to see the eyes shaded. It is, however, appropriate in many other kinds of composition. If done in a delicate way as in Figs. 30 and 31, it adds considerable beauty to the face. But as soon as it is overdone, the face is too much darkened for a pleasing representation. The shadows of a hat can sometimes be usefully employed to obliterate undesirable detail in the hair, or to throw a shadow over a poorly shaped ear (Fig. 30).

Figs. 13 and 17 portray young ladies fixing their head-gear. Any occupation of this sort helps the pictorial aspect. You will observe that both subjects are specially attired for the occasion. The pictures would not look so pleasing if the subjects were dressed in every-day costumes or formal dress.

The disposition of a gown, skirt or train is a delicate subject. Most ladies who come to the studio in trailing gowns have given much thought to the exact carrying of the skirt and train, and are apt to regard any suggestions from the photographer as presumptuous. And yet it is necessary to treat such a costume as drapery and control its arrangement as to lines, folds and planes in order to secure a pleasing effect.

The skirt often presents such a large plane in sitting

and standing positions that its silhouette and leading lines form an important factor in any composition that can be attempted. We may concede that most women can trust their eyes as to picturesque effects when they are left alone before a mirror; but it is quite a different matter to assume a pleasing pose before the camera. Here the photographer's knowledge of drapery and its manipulation should help him, for a few well-directed touches here and there will often make all the difference between a happy and an unhappy arrangement. Skill in this makes the successful portraitist.

Tailor-Made Gowns

I suppose that the simplest problem is that presented by a trim, tailor-made gown. It has a generally uninteresting but definite shape, and its graceful appearance in a portrait necessarily depends on the wearer. One can only hope to induce the sitter to take an attitude which will show the gown to the utmost advantage. A pleasing arrangement will present itself if the photographer manages to keep his subject animated, observing meanwhile the changes in folds, contours and outlines.

The ordinary shirt nearly always presents a quadrilateral or bell-like shape, whether viewed in a standing or sitting position, as in Fig. 13. It is difficult to change this shape, except by showing off the figure in profile when the outlines of the body will be indicated, or where the train is so voluminous that part of it can be used to modify and break the rigid outlines of the skirt proper.

The lines of the modern skirt are apt to prove unwieldy and tend to overmuch parallelism in folds and masses, which leads to meaningless repetition and confusion. The picture, "*La Dame en Bleu*," is a Salon picture (Fig. 27), but that does not prevent it from being very ordinary, especially in the arrangement of folds which might have been more cleverly handled.

Distinct patterns, flounces, tucks, pleats, embroideries and other special ornaments, such as ribbons, will oftentimes prove of valuable assistance, as we see in Fig. 17. Here the embellishment is of the same tonal value as the dress and helps to add interest without distracting the eye.



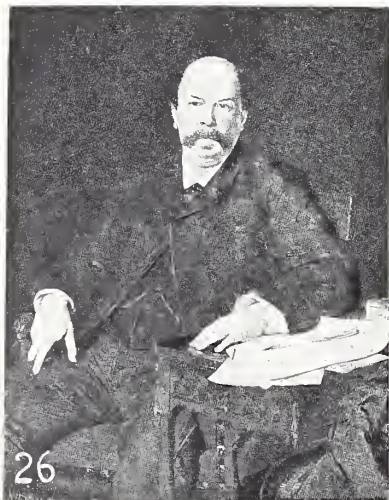
19. Daughter of the Rajahs (Sinibaldi)
20. At the Temple Gate (Bulleid)
21. The Blue Boy (Gainsborough)
22. Pandora (Winter)



23



24



26



25

- 23. The Reader (Walter Fisher)
- 24. Portrait (Gaiduschek)
- 25. Girl with Book
- 26. Henri Meilhac (Delaunay)

**Clinging
Materials**

Gowns of clinging materials offer greater opportunities for manipulation, as their natural grace can generally be made to accentuate the form of the figure where this is pleasing. Such materials have always a certain amount of pictorial value, but they tend to produce planes in great and sometimes confusing variety rather than lines and folds. Fig. 27 is worth noting from this viewpoint because the four principal lines of the low-cut bodice, the belt, and tunic and skirt are lines running in a horizontal direction, helping considerably to balance the figure and give it grace.

Of considerable importance in any arrangement of the skirt is the line produced by the hem of the dress. To shade this off into indistinctness, or to cut into it with the lower margin of the picture, will often make this effective where it would otherwise interfere with the composition (Fig. 13). If it cannot be so modified and must be shown, every effort should be put forth to make it interesting in lines. This has been done in Fig. 28 with considerable skill. The greatest variety of effects in lines and folds in a woman's dress are often the result of skillful lighting. By this method conventionalized lines are softened or broken in force, the play of light and shadow giving apparent richness.

Trains

If at all well managed the train of a woman's gown can always be made effective in a full figure composition. It isolates the wearer from her surroundings and gives the figure repose and dignity. In wearing the train, the figure should be held erect. To let the train simply trail is the least effective way of handling it. The bringing forward of the train about the feet of the wearer is perhaps the most popular way of arrangement in photography, but a careful study of the way in which such painters as J. W. Alexander manage the train will suggest many other methods of manipulation which are worthy of following. In the hands of the painter the skirt or train loses something of its conventional shape and presents a rich variety of boldly sweeping curves and undulating lines.

Sometimes the lifting of the skirt or train with the

hand will enable the photographer to break up its unwieldy lines and give a greater variety of light-and-shade effects. Similarly by placing one foot on a support slightly higher than the other; or posing the figure so that one foot is slightly in advance of the other, the quadrilateral shape of the front can be agreeably broken, and the curves rendered more pleasing.

The picture maker must depend largely on his ingenuity in meeting the requirements of each individual case. He is more or less bound by conventional forms and, if conditions do not permit him to do better, he should try to make the best of the situation. But if there is any freedom he should be able to take advantage of his opportunity to produce a variation in effects which will be agreeable to the eye.

Shawls and Veils

The introduction of shawls, boas, veils and the like can often be employed to make women's gowns more interesting from the pictorial viewpoint. In Fig. 29 we see how a tailor-made gown can be almost obliterated in this way. The boa and muff have here concealed everything that would have looked ordinary, and merely reveal a glimpse of the body, which happens to be crowded with contrasty details, these serving to offer contrast to the blackness of the furs.

A shawl can be worn in only three ways: on the head; over the shoulders, or over the arm as in Fig. 13. The latter is probably the most picturesque and affords the best opportunity for drapery. If the shawl is different in color and tonal value from the dress, a stronger and generally a more pleasing effect will be the result. A shawl hanging over both shoulders will always be a trifle too symmetrical unless seen in profile view. It can be avoided by letting it slip down from one shoulder, or having one side longer than the other and bringing it across the body. A shawl on the head can be arranged in many ways. It can hang loose like the veil in Fig. 19; be wound about the head and neck, or draped over the shoulder and bodice. Fig. 6 shows a good example. As a shawl, after all, plays only a minor part in the composition, it is well to have it different in texture and color from the rest of the costume, and to use it as a

means of accent or spot that tells and is interesting in its monochrome values as well as its shape.

The Boa as an Ornament There are no boas among our illustrations, but the ermine border in Fig. 11 shows a way in which the boa might be effectively used to enhance a portrait. In some instances the boa can accentuate the costume with which it is worn by its difference of texture. In other cases, as in Fig. 11, it may serve to differentiate textures by its lines and contrast.

Points of Interest Many other similar accessories will suggest themselves which do not call for separate discussion. It is not so much the object employed, as the application of it to the purpose in view which gives it value. Needlework, for example, always furnishes a desirable point of interest in the portrayal of a female figure. This accessory is less employed than it might be. It serves to lower the face and will often give charm and pictorial quality otherwise lacking in the figure. The "Pandora," by Chas. A. Winter (Fig. 22), is a decorative study. The casket here furnished the motif for a beautiful pose of the hands, which is the best part of the picture. A miniature or other small object usually held in the hands for examination will often enhance a composition in the same way, supplying interest.

Fans A fan, if properly placed, has a certain decorative quality, no matter of what particular shape it may be, as the shapes of fans are generally graceful. In Fig. 31 we have a fan introduced, but it is merely an incident and could just as well have been left out or replaced by some other object. In much the same way a parasol can be made to play an important part in a portrait. In some instances a parasol placed, open, behind a girlish figure will give character and pictorial interest, enhancing the charm of the figure in a large degree. The proper use of a cane will similarly add distinctiveness and individuality to the portrait of a gentleman. But a natural and characteristic way of carrying such things must be insisted upon, since all such accessories are subject to the habit of the wearer.

Musical Instruments

All picture-makers seem to be especially fond of introducing musical instruments into their portrait compositions. It is not a bad device, after all, as few objects are more graceful in shape or more suggestive of poetic sentiment. They should, however, be handled with great care. The photographer should never put a musical instrument into the hands of any one not thoroughly familiar with its use. Especially does this apply to the violin and cello, which invariably look ridiculous in any hands save those of the expert amateur or professional player. An inaccurate pose never convinces. It destroys the very impression that it was intended to make.

In pictures where a harp or violin is shown, their forms, so rich in variety and picturesque quality should always be shown to the best advantage. In musical groups, take care that the players are not too widely separated, nor so close together that the forms and instruments are confused. We have a good example of the single figure in Kaulbach's "Adagio" (Fig. 32). Here the instrument is in no way conspicuous and yet it dominates the composition, the figure gaining significance by the application of the accessory. In depicting all stringed instruments special attention must be paid to the hands. The hands are the musician's tools of trade, and as important as the face and the rest of the body. To use a musical instrument as a meaningless accessory, as is too often done, is illogical.

We now come to the most important and difficult problem in the way of accessories, namely, the use of furniture and interior backgrounds. Since the introduction or popularization of home portraiture by skilled amateurs and professionals, we have had a veritable revolution in the use of furniture in the studio. Nearly everything of pleasing design and form is now found to be available, in strange contrast to earlier days, when a few impossible chairs, a heavy velvet curtain, a pot of artificial flowers and a pedestal were considered sufficient for all purposes. I am of the opinion that the old timers were not wholly unwise in limiting themselves as they did to



- 27. La Dame en bleu (Eliot)
- 28. Portrait (Caro-Delvaile)
- 29. Portrait (Bieber)
- 30. Portrait (Birnbaum)



31. The Japanese Fan (Webster)
32. Adagio (Kaulbach)

a few accessories. There is really little or nothing gained by a profuse application of furniture, such as we often find in modern portraiture; and the frequent subordination of the figure to an artistic interior really takes us out of the realm of portraiture into interiors with figures.

The principal trouble with the old-fashioned studio furniture was that it was, in most cases, too ornate and sumptuous and at the same time hopelessly awkward and ugly. If we would make our studios simple in design and furnishings, similar to a cheerful and restful room at home, we need not trouble ourselves with a multiplicity of elaborate accessories. European portraitists are far ahead of us in this matter. Look at the studios of Hugo Erfurth in Dresden (Fig. 33) and Rudolf Dührkoop in Hamburg (Fig. 34). In such rooms one can make artistic portraits. No matter where the visitor may turn, he or she will always suggest a pleasing arrangement, and the walls are so treated that they invariably suggest an interesting background. In these rooms the shape and design of the furniture, doors and trimmings, wall papers, curtains and lighting devices are all arranged in perfect harmony with their purpose and use. The moral is to use as little furniture as may be, and to have that little correct and in keeping with the rest of the composition.

Of course, good pictures have been made in which pieces of elaborate furniture played a conspicuous part, as in Figs. 13 and 28. Fig. 13 is a particularly good example. The furniture here is every bit as important as the figure, and yet the sofa, table, wall and curtained window are subordinated in such a way that they do not interfere with the theme of the picture. There is nothing obtrusive about the numerous vertical and horizontal lines; a clever arrangement of dark masses in the lower part of the composition connects everything in a pleasing and harmonious nuance.

Of the larger pieces of furniture, few are so often introduced as the piano. It is a rather cumbersome accessory, and too bulky in form unless you indulge in clever space

**Pianos
and Chairs**

composition. In most instances it should be suggested rather than seen in detail. This rule applies to nearly all furniture. Even the necessary chair is rarely so beautiful that it enhances the picture if shown in its entirety. You will notice that most painters show as little of it as possible, as in Fig. 28.

**Sofas
and Settees**

A sofa, lounge or settee should be shown only in perspective or in part, for the shape of all this kind of furniture is too symmetrical to look well. It takes an exceedingly clever composition and treatment (as in Fig. 13) to render the full view of a sofa attractive. Somehow the pose of the figure has to subdue the severity of lines and masses and this is no small task with a large piece of furniture, such as a sofa.

**Minor
Objects**

A profusion of small or minor objects, even though skillfully arranged, cannot be recommended for use as accessories in photographic portraiture. They are in most cases unnecessary and we cannot indulge in figure and still-life representation at the same time. Only such accessories should be used as are necessary to the figure, or will lend attractiveness, interest or variety to the picture when properly placed and subordinated.

Special attention should be paid to **The Viewpoint** the viewpoint from which a room, or part of a room, is taken, when this is intended to serve as a foil, accessory or background to a portrait. For a large room, it is best to have one wall directly facing the camera. You will recall that Whistler composed all his single figures in this way. It makes for simplicity and effectiveness, lending repose and dignity to the subject, although perhaps more suited to pictures of women than for men, unless the latter have something picturesque about their garb. Sometimes, but rarely, a library or bedroom may compose to better advantage if the camera faces one corner, but this is apt to produce exaggerated perspectives, and slanting lines, rushing as it were to a vanishing point, are seldom agreeable to the eye. In the representation of a room, every suggestion of perspective should be avoided as far as possible, save in those few instances where the



33



34

33. Studio of Hugo Erfurth, Dresden

34. Studio of R. Dührkoop, Hamburg

lines definitely aid in balancing the composition. In a corridor picture, for instance, or where a figure is posed at an open door, the lines are of great importance.

Backgrounds are really a big subject

Backgrounds of themselves, and I cannot here enter upon any detailed analysis of this field.

It may be helpful, however, if I refer briefly to a few variations of the conventional ground, such as are suggested when an interior or two can be utilized, as in home portraiture. As distinct from pure portraiture, a plain background is rarely advisable in picture-making. (See Figs. 18 and 24.) It looks too bold and severe. But it is not necessary, on the other hand, to seek elaborate backgrounds. Sometimes we see a complete landscape utilized in this way. A foliage arrangement, as in Fig. 17, or a tapestry effect, as in Fig. 15, will suffice to relieve the blank and uninteresting monotony. A reliable and easily accessible background is furnished by a screen, especially one of Japanese design, which usually lends itself well to decorative space-filling. Notice how the ordinary black-and-gold screen enhances the figure in Fig. 31. Here the screen balances the whole composition, softening the tonal value of head and shoulders, so that they do not seem silhouetted against the light background. It also furnishes an agreeable note of contrast.

But the most suitable background for a figure in modern dress is often a plain wall hung with oblong and upright picture frames. The lines of the frames, if well hung and carefully considered as to position in relation to the figure, invariably assure a pleasing division of space. If we look carefully at a few pictures where this sort of background has been used, the way in which the framed pictures divide the space and balance the figure will be plainly observable.

Ideal Furnishings In this use of walls as accessories, where the wall is decorated, we must be careful to select one in which the lines of the decoration, curtains, woodwork, or mantel, harmonize with the general outlines of the figure—look as if they had been specially arranged for use with that figure. They should look as if they naturally corres-

ponded with or supplemented the silhouette of the figure. So that rarely, indeed, can a wall or any definite arrangement of an interior be used for more than one figure. Another figure will need a different arrangement. For this reason, in picture-making with these natural accessories or surroundings, we should refrain from unnecessary labor until we have a room in which the pleasing arrangement of the subject is possible. The right arrangement is one which suggests spontaneity and naturalness; it will unconsciously envelop and harmonize with the figure, claiming no more attention than we care to give it apart from the figure or chief motif of the picture.

SADAKICHI HARTMANN.

Notes and Comment

According to Mr. William Thomas, an English hand-camera worker of note, the future of hand-camera work is likely to develop in two distinct directions—a larger use of the reflex type for moderately large-sized work up to $6\frac{1}{2} \times 8\frac{1}{2}$, and an increased use of extremely small compact pocket-cameras, giving small pictures with finely defined images and considerable “depth of definition,” suitable for after-enlargement. There is little doubt about the correctness of this forecast, and we have already provided the American hand-camerist with a great deal of practical information in *THE PHOTO-MINIATURE*, intended to help him in this development of photography with the hand-camera. There can be no reasonable doubt but that for serious work, simplicity and certainty in manipulation, as well as the largest possible efficiency in results, a hand-camera of the reflector type is the best instrument available. This subject is very practically and comprehensively dealt with in *THE PHOTO-MINIATURE* No. 99: “Reflex Cameras,” which, by the way, is the only work in the English language devoted to this type of camera and its use. The possibilities, the practical advantages and the manipulation of the small or pocket-camera (cameras taking pictures smaller than $3\frac{1}{4} \times 4\frac{1}{4}$ inches) are very fully outlined and discussed in *THE PHOTO-MINIATURE* No. 97: “Photography with Small Cameras.” This monograph is abundantly illustrated with examples of the work of pocket-cameras, and contains a list giving all the vital facts available about all the American and British pocket-cameras.

Supplementing these two numbers, we have in *THE PHOTO-MINIATURE* No. 100 a cleverly written monograph, telling how to get successful enlargements from small negatives, obviously designed to aid the reader of

Nos. 97 and 99. Every amateur who is at all interested in the up-to-date capacity of the reflex and small pocket-camera should give these three numbers very careful reading. For the beginner who wants a practical manual upon hand-camera work of the every-day kind, dealing with the choice and use of an inexpensive camera, we have published THE PHOTO-MINIATURE No. 107: "Hand-Camera Work".



The Cooke Lens Souvenir, distributed at the Convention of Professional Photographers at Milwaukee, July 11 to 16, consisted of a remarkably good photograph of the Metropolitan Life Building, New York City, with its white marble clock tower, 700 feet high, containing fifty stories devoted to offices, and one and a half miles of elevator shafts. The photograph is an unusually good example of fine lens work, and offers convincing proof of the defining, illuminating and covering capacities of the Cooke lens. It is possible that those who would like to see this print can obtain a copy by writing to The Taylor-Hobson Co., 1135 Broadway, New York, mentioning this note.



After forty-three years of uninterrupted business in the same section of Maiden Lane, one of New York's most interesting down-town streets, the firm of Schering & Glatz, manufacturers of Schering's Pyro and other chemical specialties, has removed to 150-152 Maiden Lane, where they now occupy the whole building. The many photographic specialties of this old established firm are not sufficiently known by photographic workers, and any of our readers who may be visiting New York will find it well worth their while to call upon Messrs. Schering & Glatz, and make themselves acquainted with the facilities and service they offer to photographers.



In the June number of *The Photographic Journal*, which contains the transactions of the Royal Photographic Society of Great Britain, Mr. Chapman Jones

writes interestingly on "The Proposed Substitutes for Ferrous Oxalate in Mercurial Intensification." According to Mr. Jones, none of the proposed substitutes is equal to the ferrous-oxalate method of intensifying negatives, and he sums up his experiments and his twenty years' experience with the ferrous-oxalate method in the assertion that it is shown to be "theoretically and practically sound," and the only method that has been proved to deserve confidence.



So widespread has been the appreciation of the "Tipster" that the Defender Photo Supply Co., Rochester, N. Y., has been obliged to publish a fifth edition. The *Tipster* is all that the name implies. A little handbook full of hints, formulæ and "tips," covering the Defender products and their successful manipulations. No photographic home is complete without the *Tipster*, and the readers of THE PHOTO-MINIATURE, in particular, will find it a useful supplement to THE PHOTO-MINIATURE Nos. 93 and 94, which deal with "Development papers" and "Photographic Post-Cards."



There seems to be an awakening of interest in the color-screens and their intelligent use. The most complete summary of commercial color-screens and their widely different capacities is that given in THE PHOTO-MINIATURE No. 92: "Practical Orthochromatics." Those who desire information with regard to the making up of special color-screens for special purposes in professional, commercial and scientific work, will find their particular wants covered in "The Photography of Colored Objects," by C. E. Kenneth Mees, a book which has already had a large sale here and in England, but which deserves to be more widely known and read. Price 50 cents; postage 6 cents.



The Premo catalogue for 1910, obtainable from all dealers, is now ready. It describes all the different

varieties of Film Pack and plate Premos, starting with Premo Juniors, Nos. 1, 1A, 3 and 4, and ending with Premo view cameras. It is now possible to get a Premo or Premoette in almost every desired size and style, whether for the simplest hand-camera work, in the hands of a child, or for commercial or special work, such as stereoscopic photography. The reliability of Premo camera construction and the unspeakable convenience of the Film Pack have won for Premo cameras world-wide favor, and the man or woman who rests his or her faith in photography upon the Premo camera will not be disappointed. The Rochester Optical Division (Eastman Kodak Co.) Rochester, N. Y.



It is with very much regret that we announce the untimely death of that bright and peculiarly interesting youngster, *The Telephoto Quarterly*, which Captain Owen Wheeler has edited and published during the past two years. Every telephotographer who had the good luck to make the acquaintance of little "T-Q" during his brief but joyful life will regret his early demise. Those who never knew him cannot, of course, be expected to regret his disappearance from this vale of tears.

Which reminds us that there has just been published an exceedingly helpful little manual, *Modern Telephotography*, written by Captain Owen Wheeler (George Murphy, Inc., New York), paper covers, 75 cents; cloth covers, \$1.25. As the last word on this subject by the one man most competent to talk about it, this little handbook should be in the hands of all who have any interest or curiosity about the possibilities and use of the telephoto lens.



Packed with useful information about different kinds of lenses and their various uses, and exquisitely illustrated and printed, the new catalogue of the Bausch & Lomb Optical Co., Rochester, N. Y., is at once the handsomest and most interesting lens list which has yet reached us. In addition to the pages descriptive of the lenses and ray filters made by its publishers, the cata-

logue contains a historical sketch covering the introduction of prominent types of lenses, including the anastigmat; a glossary of lens terms; a table showing the angle of view, included with lenses of different focal length, depth of focus and exposure tables. The illustrations include examples of almost every kind of photographic work, and clearly show the different results obtainable by the use of different lenses. We offer our congratulations to the Bausch & Lomb Optical Co., upon this successful piece of business literature, and urge readers of THE PHOTO-MINIATURE to secure copies of this catalogue before the edition is exhausted. It is a valuable addition to the bookshelf, and every one working with the lens should have it at hand.



We are advised by the Gaumont Company that they have removed their offices and factory to Congress Avenue, Flushing, N. Y., to which address all American communications should be sent. The address of the Canadian branch of this house has also been changed from 25 La Patrie Building to 154 St. Catherine street, West, Montreal. The Gaumont Company is the general agent for the manufacturers of the celebrated house, Gaumont, Paris. Among their specialties are the Block-Notes, a series of pocket hand-cameras of the highest grade. Readers who are thinking of purchasing a small hand-camera should not overlook the Block-Note catalogue, which may be had for the asking from the above firm.



The new Ansco Catalogue, 1910, has a startlingly attractive cover, linking Ansco with the eternal feminine. Inside the covers we have detailed particulars and illustrations of the Ansco Automatic Shutter, the Cyko Automatic Shutter and the Junior and Midget Shutters. The Buster-Brown series and the Ansco Nos. 1, 2, 3, 3A Junior, Nos. 4, 5, 6, 7, 9 and 10 Folding Pocket Ansco, the famous Ansco non-curling film, and other specialties, have made this name Ansco famous wherever photography is done. Readers who cannot get the

AnSCO catalogue at their dealers' should send to AnSCO Company, Binghamton, N. Y., and obtain a copy direct.

Every hand-camerist is familiar with the difficulty of photographing tall buildings and securing true vertical lines, especially where the camera has not a swing back; and, even where the camera is fitted with this convenience, the use of a very small stop (long exposure) is necessary to minimize the blur at the ends of the plate. An interesting explanation of this trouble and its cure is given in a leaflet sent by the Gray-Lloyd Lens Company, Ridgewood, N. J., and every worker with a hand-camera should get this little leaflet, which is illustrated with two diagrams, making the whole matter quite clear.

Williams, Brown & Earle, of Philadelphia, advise us that they have incorporated and will hereafter do business under the firm name of Williams, Brown & Earle, Inc., at the old address, 916-918 Chestnut street, Philadelphia. The reputation of this house as manufacturers, importers and dealers in engineering, optical, photographic and scientific instruments is an enviable one, and we join with innumerable friends in wishing the new corporation every success.

We have, within the past few weeks, made quite a number of hand-camera negatives on the Imperial Non-Filter Plates, imported G. Gennert, New York and Chicago. The negatives secured of subjects including a very wide range of color contrast, and sometimes excessive contrasts of light and shade, demonstrate that N. F. plates possess remarkable latitude and gradation capacity, in addition to their special sensitiveness to green and yellow. The convenience of being able to dispense with a ray filter or color screen is one which every hand-camera worker will appreciate, as it enables one to take full advantage of the great rapidity

of the plate, viz: 225 H & D. The importer tells us that many photographers are using these plates for general commercial work, copies of paintings and difficult drawings, for which purposes their orthochromatic qualities would seem particularly well adapted.



The C. P. Goerz American Optical Co. is now under the new management of Mr. Fred Schmid, who has been elected to succeed Mr. August Stoeckicht. Mr. Schmid has been connected with the firm for some years past, and is widely known to the trade. Doubtless, under his able hand the popularity of the Goerz anastigmat will continue to increase, as it well deserves.



The Northern Photo Supply Co., independent dealers in photographic materials, Minneapolis, Minn., advise us that they have purchased the entire stock and business of the Multiscope & Film Co., of Fargo, N. D. The business will continue at Fargo, as before, under the management of Mr. E. W. Schultz, and the Fargo branch will hereafter carry the specialties of the Northern Photo Supply Co., which will be a great convenience to photographers in that territory.



The new developer known as Nerol (diamidophenol hydrochloride) is being introduced by Schering & Glatz, 150 Maiden Lane, New York. Nerol is a white microcrystalline powder. Its solutions are stable for a long time, if kept in well-filled and tightly corked bottles, but it is recommended to prepare them freshly as needed. It is quick in action, yielding vigorous blacks and pure whites, making it especially useful for developing bromide and gaslight papers and solar prints.



The 1910 Kodak Catalogue comes to our desk with a very attractive cover printed in gold and colors, and bulging with information about the complete line of Kodaks for the summer season. Apart from the No. 1A

Folding Pocket Kodak Special, for pictures $2\frac{1}{4} \times 4\frac{1}{4}$ inches, which is now obtainable in improved form, with ball-bearing shutter and rapid rectilinear lens or B & L automatic shutter and an anastigmat working at $f/6.3$, there are many little improvements and added conveniences all through the entire line, showing a steady progress in the elimination of all bother and uncertainty from Kodak manipulation. Special emphasis, this year, is given to the Kodak Portrait Attachment and Kodak Color Screens and Wide Angle Lenses, three specialties which add very much to the all-round capacity of the Kodak. Copies of the catalogue can be had from any dealer.



Writing in the *Journal of the Photographic Society of Philadelphia*, Walter Zimmermann states as his opinion that by far the simplest as well as the most economical method of making negative enlargements is that of making them by exposure through bromide paper, by contact in the printing-frame. Mr. Zimmermann has made all his enlarged negatives in this way since 1901. The method saves a large plate with each negative, as compared with the use of a positive or transparency, and, in addition, the time of exposure is so definite that waste on this account is eliminated. There is also another big advantage, viz., that any modification desired in the enlarged negative can be done far better on the bromide print than on the glass plate. For the plate to be used in this method, Mr. Zimmermann considers the Cramer Contrast Plate to be the best. His usual exposure with this plate is 50 seconds, at a distance of five feet from an ordinary gas-jet. In making the bromide print, the most important thing is to get the right thickness and surface of paper,—that is, the “thin-smooth” variety. The grain of the paper will not show in the negative except as a result of under-exposure and forced development.



One of the inevitable results of the great popularity of the picture post-card is that most amateurs now have

their own private post-cards made from their own negatives, showing an exterior or interior view of the home or of some special feature. Such a private picture-card never loses its interest and is always most acceptable to absent friends. Readers of the THE PHOTO-MINIATURE who would like such cards made from their negatives, whether in color or in monochrome, should write for samples and quotations to Department 17, The National Colortype Co., Cincinnati, Ohio.



Encyclopedic in its completeness and detailed information, unusually well arranged and profusely illustrated, the 300-page catalogue of photographic materials just published by George Murphy, Inc., New York, forms a reference book which every photographer should have at hand. It would be difficult to mention any photographic specialty or convenience which is not described and illustrated in this catalogue. Each section gathers in compact form all the different varieties of the various classes of lenses, cameras, studio outfits and equipment, shutters, vignettters, printing-frames, developing, fixing- and toning-trays, trimmers, exposure helps, darkroom lanterns, flashlight apparatus, masks and mats, enlarging and projection lanterns, spotting colors and retouching helps, together with all the other thousand-and-one items which are required in the practice of photography. Copies of the catalogue can be obtained by sending ten cents to George Murphy, Inc., 57 East 9th Street, New York.



The Photographic Annual 1910-11 is approaching completion and, it is expected, will be ready for delivery in August. While retaining the "Figures, Facts & Formulæ," covering all branches of every-day photography, as in the two preceding volumes, *The Photographic Annual*, this year, shows considerable change in its make-up. Its notable features are two monographs covering the two principal topics of interest during the past twelve months, namely: "Screen Plate Color Photography" and "Development." The editorship of the

book and the changes noted are to be credited to E. J. Wall, F. R. P. S., and the monographs mentioned, are from his pen. We believe that American readers will welcome the changes, as making the book still more interesting and valuable. 288 pages; paper covers, 50 cents, postage 8 cents. Cloth-bound edition, \$1, postage 10 cents.



A Common Error in the Estimate of the Effects of Light in Photography

July 7, 1910

To the editor of THE PHOTO-MINIATURE:

Dear sir—There is manifestly an egregious error in our current estimates for the effects of light on our sensitive plates. We assume, for instance, that if a certain lens-aperture lets in a certain quantity of light, and another aperture of the same lens lets in just twice as much light, that therefore the latter aperture will require exactly one-half the time for the same exposure of the plate. If a lens which will work at $f/5.6$ is set to $f/8$ and so set will take just one second for a proper exposure, we assume that because $f/5.6$ has twice the area, and consequently will admit just twice the light, that therefore, when set at $f/5.6$, the exposure should be one-half second. Now the error of this assumption lies in this: the quantity of the light and the chemical effects of the quantity of light are two different things. As a matter of natural law, twice the light will have more than double the effect. It manifestly will be as what the physicists term the *vis-viva*. Let us explain this in physics: If a railroad train is running at, say, sixty miles an hour, it will have twice the mere momentum as if it were running at thirty miles, but its *vis-viva* will be as the squares of the velocities—four times as great. If, at the greater speed, the steam were shut off, and the train by its momentum should run one mile before coming to rest, then at the thirty-mile speed, but otherwise under the same conditions, it would run only one-fourth of a mile.

Now, the same natural law holds as to the chemical

effects of different lights passing through a lens. In the above case, the chemical effects would be as the square of the lights, or 2×2 , equaling 4. That is, $f/8$ would require four times as long an exposure as the $f/5.6$.

As a matter of fact, if we record and analyze the work of an experienced worker who estimates by a happy intuition, we will find that his work gravitates near to what has been pointed out above. In the modern superior lenses, the makers are giving us greater power than they tell us of.

Below, in the first line I give the current apertures; in the second line, the commonly accepted relative exposures; and, in the third, the proper relative exposures for time:

$f/4$	$f/5.6$	$f/8$	$f/11$	$f/16$	$f/22$	$f/32$	$f/45$	$f/64$
1	2	4	8	16	32	64	128	256
1	4	16	64	256	1024	4096	16384	65536

The foregoing deductions may seem astounding to some, nevertheless they are in accord with sound theory, and will be verified by careful experimentation. They account for the amazing rapidity of very high apertures, and the excessive sloth of very small ones.

Yours truly, GASTON M. ALVES.



Home Interior
A. E. Sproul

The Photo-Miniature

A Magazine of Photographic Information

EDITED BY JOHN A. TENNANT

Volume X

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Number 110

Commercial Photography

If any reader of these pages seeks a remunerative business, wherein he will not be harassed by over-much competition, and where the rewards go to the most skillful, without favor, let him take up commercial photography, and put joy into his work for a year or two. No other photographic field within my knowledge offers so many or such rich opportunities, or calls more openly to the man or woman who has capacity and the will to do. To tell something about this field, and how to begin work in it, is the purpose of this monograph.

Broadly speaking, commercial photography now-a-days includes every sort of professional photography outside of pure portraiture, and a few similarly restricted lines calling for special training and equipment. To get a glimpse of the field, we have only to set down a few of the everyday lines which come to the average commercial worker. It will aid us in grasping the scope of the field if we take these under the two broad headings of out-door and studio work. Under the first we will group some of the things which have to be done away from the studio or work-rooms of the photographer, whether indoors or out-of-doors; while under the second we will mention some of the kinds of work usually brought to the studio for greater convenience in handling or manipulation.

Out of the Studio	In outside work we have interiors of all classes: homes, clubs, schools, churches, factories, stores, institutions, theatres, steamships, railroad cars, offices — all usually
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found in cities of larger population. Construction and architectural work for builders, contractors and architects, including buildings about to be demolished, excavations, construction work in progress, and completed buildings. Architectural detail work also comes into this class. Survey work, photographing the development of town sites, scenic features of a section awaiting development, residences, etc., for real estate firms is an allied branch. Industrial plants, including exteriors and interiors, photographing machinery *in situ*, in operation, parts of machines, the processes of manufacture from raw material to finished product. Railroad work, including construction along the road, bridges, depots, trains and scenic features for advertising purposes. Agricultural and horticultural work, illustrating the use of machinery in farming, tree and floral culture, landscape gardening and the like. Marine photography, usually for government purposes, speed trials of war vessels, gunnery tests, work done at naval stations, etc. Press photography, embracing almost every out-door event likely to interest the readers of newspapers and magazines. Civic photography, including parks, monuments, docks and public places under development and completed.

Under the heading of studio work

Studio Work we have the photographing of everything made to sell—for the illustration of catalogues, booklets, advertisements, sample books, etc. The photographing of furniture and woodwork of all kinds; typewriting machines, tools and small hardware; clocks and jewelry, gold and silverware; bronzes, pottery, china ware and fancy glass manufactures, household conveniences, trunks and bags, wall-papers and upholstery fabrics, textile stuffs for wear and clothing of every sort, linens and laces, gloves, veillings, hats and so on. A special branch is figure-work: the photographing of models for illustration, showing the use or attractiveness of wearing apparel or the manipulation of some personal convenience, the way of doing something such as facial massage, etc., and pictorial figure work for the production of pictures designed to embellish an advertisement or booklet. Another special class of commercial work is photography for legal or scientific purposes:



Display for a butcher's advertisement
A. E. Sproul

the copying or reproduction of documents, wills, deeds, disputed signatures and similar items used in legal evidence; medical photography, including photo-micrography, etc. Museum work, such as the photographing of specimens of all sorts, the reproduction of paintings, photographs of statuary, etc. Then we have the photography of domestic animals, horses, cattle, dogs, cats, birds, and the like. The list might be extended indefinitely, but I have given enough to show the scope of the field and its many possibilities for the man or woman who can work it.

It is obvious that no one man can
Specializing meet all the needs of so varied a field.

Hence we have commercial photographers who devote themselves to two or three allied lines, and others who devote themselves to a single line, while others, in large cities cater to general work indoors and out. The problem is one which usually solves itself. A commercial photographer who cultivates some special line and is favorably located will generally find all the work he can do in his specialty seeking him or readily obtainable. There is a demand for men who can do this or that particularly well. Similarly, a man who cultivates outside work and makes his mark in that field will find his time fully occupied in that field.

An example or two will show the
Successful truth of this. A newspaper photogra-
Examples pher of my acquaintance not long ago took up the photographing of the interiors of Catholic churches in New York, a field at that time wholly neglected. His work was good and found ready sale among pastors and parishioners. It was extended to church exteriors, and soon a collection of valuable negatives was available, so that albums of prints could be offered for sale. These were quickly taken up by clergy, church-builders and architects, and the work proved unusually profitable. Finally the photographer took a correspondence course in architecture and launched out as an expert architectural photographer with complete success. Similarly a woman photographer developed her abilities in photographing the exteriors and interiors of fine city residences, a work with peculiar difficulties. A single

year's work in this specialty resulted in a profitable opening whereby all her time is retained by two city architects, who keep her busy all the year round. The printers of THE PHOTO-MINIATURE provide another example worth noting. Specializing in the production of catalogues and booklets for seedsmen, florists and horticultural firms, these printers rebelled against the conventional and generally wretched woodcuts commonly used for the illustration of horticultural literature a few years ago. They thereupon took up the photographing of plants, flowers, trees and the like for the better illustration of their printed matter. This innovation was welcomed by their customers as obviously making their catalogues and announcements more attractive and giving them greater selling quality. So the photographic department grew and broadened its scope, until today it is the most comprehensive (and most profitable) plant of its kind in this country. In the great collection of negatives possessed by this firm may be found almost every sort of subject likely to be useful to the seedsman, florist, horticultural worker, outdoor magazine and book illustrator, suburban home builder and landscape gardener. Still another commercial worker, house-bound by physical disabilities, has devoted profitable years to the photographing of small articles of jewelry, silver ware, bronzes and similar items; while another is fully occupied with electroliers, gas fixtures and decorative furnishings in metals. Similarly, an insurance appraiser in the southwest left his appraising to photograph railroads, cattle, ranches, industrial plants, etc. The work came to him faster than he could handle it, when once he had demonstrated his ability, and today he has the choice of his work at his own price. On the other hand we have Mr. Sproul, whose work illustrates these pages, busied with general work big and little, indoors and out-of-doors. This demands a wide technical knowledge and ability by the variety of the requirements, and necessitates considerable equipment in tools and working conveniences. But the variety of the work and the continual necessity to "make good" gives constantly changing interest, and good work always brings its price.

**Personal
Capacity**

With this preliminary knowledge of the field, we come to essentials in capacity and equipment. The last is important, but the first is vital. Success in commercial photography depends upon "making good" under widely differing circumstances and oftentimes adverse conditions. The commercial worker must be a man or woman of the broad-gage type, combining natural and photographic ability with resourcefulness and energy. It is peculiarly a field wherein business opportunities are made quite as often as they happen. The men who want photographs for commercial uses are keenly alive to the value of the photograph as an aid in selling goods or showing the features of what they have to sell, and the matter of price is of little moment if they get what they want. The difficulty is to find the man who can "deliver the goods". Not long ago a maker of clock cases spent \$1,200 on a catalogue designed to display his goods to the trade in place of the traveling salesman. It was beautifully printed and profusely illustrated but, as he said, "the customer needs to see the goods themselves. These half-tone cuts don't begin to show the beauty, decorative markings or finish of the choice woods and carved metal work which distinguish our goods." The catalogue failed in its vital part. It was simply a case of a commercial photographer who worked without ortho plates and color screens—a costly bit of ignorance for the clock-case maker, which the photographer could have obviated by spending fifty cents in the purchase of Mees: *The Photography of Colored Objects*. Similarly I have seen commercial work fail utterly from the viewpoint of the manufacturer of machinery, simply because the photographer used a lens of too short focal length, misrepresenting the relative size of parts of machines and losing all sense of proper proportion in the design.

So it has happened again and again.

Knowledge: The man who can satisfy the public
Forethought in portraiture may fail utterly when it

comes to photographing a piece of dress goods, a fan, a dog or an automobile. Here it is imperative that the "drawing" of the subject be correctly represented;

there it is a matter of accurate color reproduction, or the showing of "breed points" in an animal, or operation details in a machine. The commercial photographer must know which lens and why and when; the relative capacities of plates and color screens; the



Store exterior for booklet

A. E. Sproul

vital importance of the point of view and illumination. These are technical essentials. In personal capacity he must have alertness, quickness in thinking and action, and forethought. In commercial work an ounce of forethought is worth a ton of the other kind. So often a chance lost cannot be secured again. So often the stoppage of work in an industrial plant, bungling and losing time, means a big increase in expense to the

customer. Forethought means preparation, thinking the work out beforehand, meeting possible difficulties and providing for the unexpected. And it always means carrying a few extra plates to cover an unlooked for mishap, or a profitable subject outside of the regular work, which, of course, applies chiefly when working away from the studio.

Given the personal capacities outlined, **Equipment** the photographic equipment of the commercial photographer does not present serious difficulties. It will necessarily vary according to the work in hand, and the man who knows how to do the work will quickly see what he needs in the way of tools. For general work, of course, the equipment will have to be formidably complete, but the different items can best be provided as they are needed. For outdoor work, a strongly-built view camera of the collapsible type, with generous provision in the details of swings, rising front, extension bed, etc., will be found most generally useful. For certain kinds of work a rigid tripod with legs in one piece, i.e., unjointed, and a triangle with casters or rubbers, or a Mellen tripod stay will be required. For other outdoor work the usual jointed and collapsible tripod will suffice. For outdoor work, including rapid movement, the reflex camera is a necessity, and such a camera is most convenient where the arrangement of the subject on the plate is of importance or offers any difficulty. Whatever type of camera is in use, it should have provision for the use of color screens. These screens are absolutely indispensable to commercial workers and they must be adjusted to the plates with which they are used, so that the exposure is increased as little as possible consistent with the obtaining of "color values." In this use of ortho plates and adjusted screens we have the biggest modern advance in commercial photography. The plate must be able to record the "color values" of the subjects and since no plate, alone and unaided, can do this, an adjusted screen is essential. This question of ortho-plates and screens is too complicated for treatment here, or for the average man to solve for himself. A careful reading of THE PHOTO-MINIATURE No. 92 :

Practical Orthochromatics will help one to grasp the principles involved, after which the American reader is advised to get the expert help of Mr. R. James Wallace, Cramer Dry Plate Works, Saint Louis, Mo.; while the



Corner of domestic rug

A. E. Sproul

English reader should consult Dr. Kenneth Mees, Wratten & Wainwright Co., Croydon, Surrey. These gentlemen have given special study to the methods best adapted to the accurate reproduction of colored subjects for the benefit of commercial and specialist photographers. In the choice of lenses for commercial work, a few words of advice will be sufficient. The anastig-

mat is undoubtedly the best type for commercial work. Lenses of different focal length are essential, and a battery of four objectives will be found generally useful. For difficult interiors and buildings in confined locations or narrow streets an extreme wide angle lens will often be found necessary. For special classes of work such as inaccessible architectural details, photographing distant objects where a large image is required, a telephoto lens or attachment should be added to the equipment. To get a clear idea of the capacities of different lenses and how to choose them for various kinds of work, the reader is referred to THE PHOTO-MINIATURE Nos. 79 and 90.

With regard to plates little needs to be said except that color-sensitive plates (with adjusted screens) will necessarily be employed for much of the work coming to commercial photographers. The old theory of one plate for all kinds of work will no longer hold good, and the more the reader knows and appreciates the different capacities and uses of modern color-sensitive plates, the surer will be his success. This knowledge he can get in THE PHOTO-MINIATURE No. 92. For interior work and subjects with delicate contrasts, or wherever reflections are liable to be troublesome a good non-halation (double-coated) plate is advised. This plate needs peculiar care in development if its good qualities are to be brought out. For copying and general black and white work in the studio a process plate will sometimes give better results than the ordinary plate. Films are usually little thought of by commercial workers. Where, however, there is question of a long outdoor expedition and the negatives need not exceed 5 x 7 in size, the Filmpack or Cartridge Rollfilm possesses obvious advantages and should not be over-looked.

Coming now to actual work, we may profitably begin with industrial photography as one of the most important lines falling to the commercial worker. In this I avail myself of a valuable paper by S. Ashton Hand, contributed to the American Society of Engineers and drawn from practical experience.

Machine Shop Work

Photographs of machinery, interiors of shops, products

of machines, processes of manufacture, etc., are generally made to aid the selling department of an establishment in disposing of its product. Sometimes the photographs themselves are used as an advertising medium, but in the majority of cases half-tones are made from them for use in catalogs, or for illustrations in trade journals. To this end, it should be the aim of the photographer to produce prints that will require the least retouching when used for making half-tones, and this for two reasons: First, the retouching of prints for half-tone work is quite expensive; second, the print that requires the least retouching gives much the best results in the finished half-tone. A print that requires very little retouching to produce a first-class half-tone is a good one for all other purposes, but a print good enough for all other purposes may be a very poor one from which to produce a first-class half-tone.

The camera should be a strong and
Apparatus serviceable one, having a long bellows with very little cone. In fact, one with a perfectly straight bellows is best, as it allows greater adjustment of the lens board without danger of the bellows folds cutting off any of the object. The vertical and side swings should be ample. The camera need not be larger than $6\frac{1}{2} \times 8\frac{1}{2}$ inches, and should not be larger than 8×10 inches, as anything over this size is cumbersome to handle, and requires a very expensive lens and a great deal of skill to operate. If large prints are wanted, bromide enlargements can be made up to any reasonable size, and if for any reason large, direct or contact prints are wanted, a slightly enlarged positive can be made from the negative, and a negative as large as wanted can be made from the positive. The procedure has its advantages, as it is often possible to correct in a great measure any errors in exposure or development, and many errors in lighting and position. The writer never uses a camera larger than $6\frac{1}{2} \times 8\frac{1}{2}$ inches, and has produced many excellent enlarged negatives up to 24×36 inches, by the method above mentioned.

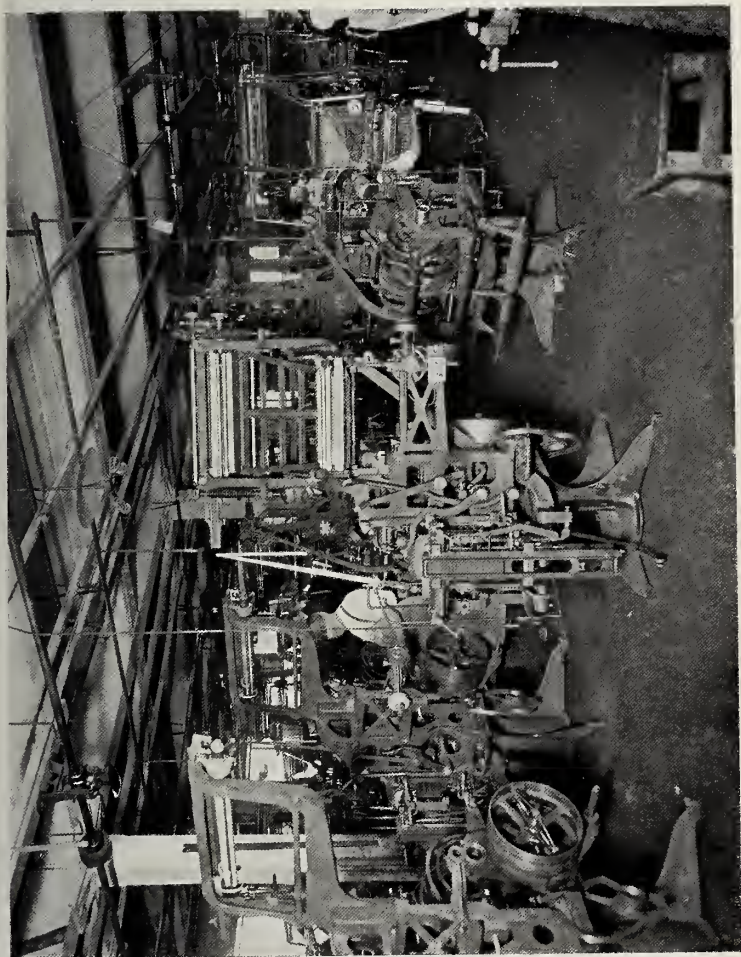
The tripod should be solid and stiff, with the fewest possible joints. An excellent thing for use with it is a triangle with sides about 36 inches long, and with a

roller or caster under each point. With the tripod mounted on this arrangement, the camera can be moved any distance or in any direction without material change in level. The lens should be the best obtainable, and too great emphasis can not be placed on its being of long focus. Never under any circumstances should its focus be shorter than the diagonal of the largest plate with which it is to be used. It should be capable of rendering sharp definition from corner to corner of the plate when using a comparatively large diaphragm. A lens of this character will render the focusing much easier and will enable the exposure to be made in the shortest possible time. The plates should not be the most rapid made, as the emulsion with which these are coated is not generally rich enough in silver to give printing density for anything but portrait work, and also because the timing of the exposure must be very exact. Unless both exposure and development are just right, the negative will not be "snappy" enough to produce a good, bright print. Very slow plates take long exposures, and unless skillfully handled in development will produce prints with entirely too much contrast. Plates of medium speed are the best and should be of the kind known as "double coated" or "non-halation." Plates of this kind are first coated with a slow emulsion, and after drying are again coated with a somewhat faster emulsion. Plates so coated allow of very great latitude in time of exposure.

**Preparing
Subjects**

If a machine is to be photographed, it should be painted with a finishing coat of drab paint, i. e. mouse color, and the paint should be so mixed as to dry absolutely "flat," that is, without any gloss whatever. If parts underneath the machine or in shadow are wanted to be shown, they should be painted a lighter shade than the more prominent parts, and the deeper they are in shadow the lighter they should be painted, even in extreme cases blending the color gradually into a white. All brightly polished parts should be daubed or rubbed over with a handful of soft putty to dull the brightness.

Unless these precautions are taken, the parts in



Machine shop interior
A. E. Sproul

shadow will show very dark in the photograph, and if very close together will be seen only as one shapeless mass, and the bright spots will show chalky white with very black lines and little or no detail. If letters or figures cast on any part of the machine are wanted to be shown, daub them with white paint from the end of a finger. Rubbing them with chalk will give them a very rough appearance.

Where possible, it is better to photograph a machine before it has been run, otherwise oil seeping from the bearings will leave dark and glossy spots which mar the photograph.

Lighting and Position Machinery should never be photographed out of doors, or under a skylight, as there is too strong a top light, which causes deep shadows. The light should preferably come from the north, and should fall on the machine at a downward angle of about twenty degrees from the horizontal. Cross lights from other windows should be avoided by pulling down the shades, or tacking up heavy paper. Cross lights make a confusion of shadows and obliterate certain lines, giving the machine anything but a natural appearance. If necessary to photograph the machine by other than northern lighting, then make the exposure when the sun is overhead. If the exposure must be made when the sun is shining through the windows at any considerable slant, tack cheese cloth over the windows to diffuse the light. A machine should never be photographed directly from the front, which will make it appear too flat. For depth, the camera should be placed enough out of center to show a little of one side of the machine, and high enough to show a little of the top.

Background A background of heavy drilling, either white or very light in color, should be hung not less than six feet back of the machine. It should be of ample size—large enough so that the camera can be moved where wanted and still show the background behind every part of the machine. If there are folds or wrinkles in a background, have a man at each side take hold of the edges and shake the curtain slowly and gently during the whole time of the

exposure. This will prevent the folds or wrinkles from showing in the photograph.

Floors Shop floors are dark in color, and if a machine is photographed directly on the floor it is often puzzling to know where the lower part of the machine ends and the floor begins. Therefore, a floor cloth of the same color and width as the background should be used. It should be deep enough to extend from four to six feet in front of the machine and under it and to the background. This will define the lower part of the machine, and also reflect the light upward, softening the shadows. Instead of a floor cloth, sheets or strips of light-colored paper can be used, but be sure there is no pronounced red or yellow, as such colors are non-actinic and will show black in the photograph.

Focusing Never focus on the center of the ground-glass, as this will give you the point of sharpest focus of the lens, and what is wanted is the average focus; therefore focus at a position midway between the center and the edges of the ground-glass. Get the nearest parts of the machine in focus. Small diaphragms will sharpen up the distant parts. Sometimes a better effect can be obtained by pointing the camera slightly downward, but if at any time the camera is used in any other level position, the ground-glass should be brought to a vertical position, otherwise the result will be distorted lines.

If the machine to be photographed is a long one, requiring a racking view, use the horizontal swing, to bring that part of the ground glass on which the image of the farthest part of the machine appears farthest away from the lens. This will even up the focus and make it possible to use a large diaphragm, shortening the time of exposure, and also extend the vanishing point to a greater distance, giving it a more normal perspective. If there are perceptible vibrations to the floor on which the photographing is done, get three pieces of harness felt one-half inch thick, and two or three inches square. Place one of these on the floor under each leg of the tripod, and they will absorb all ordinary vibrations and keep the camera steady.

Exposures should always be ample, as **Exposure** an under-exposed plate can never be made to show that which the light has not impressed upon it (although it can be greatly helped by skillful development), but a moderately over-exposed plate can easily be treated in development, or even afterward, so as to yield a first-class print.

Supplementing this, I quote from an **Local Illumination** article by Harry S. Hood, referring to the advantage gained by local illumination by the use of flash powder.

In some cases, after the windows behind a machine are darkened, there will not be enough light entering from other sources to permit of any but a very long exposure, and usually the light that does enter will be very uneven, rendering it practically impossible to obtain an evenly lighted soft negative showing the machine to the best advantage. Here then is a case where the use of artificial light of some sort is imperative. The best light is, of course, that given by the combustion of magnesium. Some manufacturers will not permit the use of flash powder of any kind in their plants. In these cases electric light can be substituted, if it is available. One fifty-candle power incandescent lamp placed upon the end of a loose wire about twenty feet in length will often be sufficient for the purpose. The lamp can be moved around at will during the exposure, enabling the operator to spread the light very evenly. A machine not over fifteen feet long, lighted in this manner, will require about ten minutes exposure with the lens stopped down to $f/22$. The length of the exposure varies with the color of the machine. This should not occasion any trouble, as the majority of machines are painted dark colors.

The average manufacturer of machinery will, however, offer no objection to the photographer's using flash powder, and if carefully used there will be no danger of a fire. The best powder to use is pure, somewhat coarse magnesium, and the best lamp to use it in is a small blow-lamp having a capacity of one-half ounce. This quantity of powder is sufficient to illuminate a machine thirty feet in depth. The lens can be stopped

down to $f/32$. The lamp should be kept moving during the exposure in order to prevent too deep shadows and disagreeable reflections.

Safes Somewhat akin to a machine in make-up and appearance; the safe presents peculiar difficulties to the photographer.

As Mr. Hood observes: When the average person looks at a safe, the impression it conveys to him is of something very black and very shiny. Now, if the same person owns a camera and has a smattering of photography and photographs the safe under ordinary conditions, the result will furnish him with considerable food for thought. The finished print will show not only the safe, but also the camera, the operator and all of the furniture that stood opposite the safe and behind the camera. At this point he will probably take another look at the safe, and this time he will see a number of things in it that he probably never noticed before. The writer speaks feelingly concerning the above, as he has been there. In order to get a perfect picture of a safe, it is necessary to get a piece of black cloth considerably larger than the safe, cut a small hole in it for the lens to peep through, and place it before the camera, thus screening off all objects that would otherwise be reflected. The light must come from both sides of the camera, and should be a trifle stronger on the one side than on the other. If a flash lamp is used it must be well screened.

Here the difficulties multiply rapidly, **Automobiles** for we have to deal with highly polished surfaces, parts which reflect light and make for spottiness, the glass wind-shield, windows, etc., and generally considerable color contrasts. The illustrations of automobiles seen on every hand show almost every variety of position. In this detail we are best guided by the requirements of the maker or owner of the machine being photographed. Illumination is vitally important, modeling and relief depending on this detail. Unless a particularly well-illuminated showroom is available, automobiles should be photographed out-of-doors. Where the local conditions can be controlled, it is advisable to work in open sunlight, a temporary, flat roof of white drilling or tent cloth being stretched at a



Automobile with natural setting

convenient height over the machine to soften the glaring overhead light. Ortho plates of the double-coated variety and adjusted color screens are indispensable. The lens should be well stopped down, to give depth of definition and crisp covering power over the whole of the machine. Exposure should be ample. If the work is done in sunlight, care should be taken to avoid awkward or heavy shadows, as these may seriously interfere with the design of the machine and spoil the "lines" which distinguish the machine of quality from the other sort. When photographing on a dull day and where the roadway or platform is dark and heavy in color, a coating of whitewash or light-colored sand or gravel spread on the ground under the machine will materially help the illumination of the lower parts and add to the effect in the prints.

In dealing with furniture we have
Furniture two prime difficulties: the reproduction of grain or natural markings and color contrasts, and the avoiding of reflections when the surfaces are finished or polished. When the work is done for the manufacturers, it is generally possible to work at the factory and photograph the articles in the rough or before polishing. This, of course, obviates the reflection difficulties. In such a case we need a room with abundant illumination, but with the windows covered with tissue paper to soften the light. Floor, walls and ceiling should be white in color, where this is practicable. Screens cutting off any desired portion of light should also be available. The articles to be photographed should be placed well into the room, and it will usually be found advisable to work with the predominant light behind the camera. In work of this class the size of the image is important, as well as the placing or position of the piece photographed. In these details the firm for whom the work is done will supply particulars, or provide a catalogue giving the size and positions best adapted to the needs for which the photographs are required. The camera should be so placed as to slightly look down on the subject, in order to give the back edges of chair seats, couches, tables, etc. The lens should always be of the long-focus type, say 12 or 14 in-

ches focal length for an 8 x 10 plate. Orthochromatic plates and adjusted screens are essential in securing grain and color effects. The kind of plate and screen will necessarily be determined by the colors to be reproduced. As a rough guide, a red-sensitive plate and a deep yellow screen is indicated for mahogany furniture fairly rich in color and markings.

When polished furniture is to be photographed, reflections can best be avoided by the use of screens cutting out cross lights, working in a quiet illumination with long exposures. Full exposures are advised by most experts, but Mr. Harry S. Hood takes the opposite opinion and suggests short exposures and the use of a vigorous developer such as eiko-hydro, which gives detailful negatives and snap. The secret of success lies in illumination, which necessarily varies with subject and location, and the use of sensitized plates and screens properly chosen for the colors in the subject.

Blocking Out

If one is careful in placing the background and works well away from windows, properly prepared, he will seldom have to do any blocking out. Where this is necessary, opaque is extremely useful. It is fine-grained, very soluble, and can be used in a pen for writing on glass or paper and for lettering on the film side of a negative. Use a small butter plate into which put some of the opaque from the pot, adding water enough to thin it as thin as it will cover. This opaque dries quickly and will never "pull" when going over it a second time. Where fine angles and small parts have to be blocked out a fine-pointed soft steel pen can be used perfectly, putting the opaque on the pen with the brush. If you are working on films and wish to number them, you can do so on the celluloid side; and this is an advantage where one is not an adept at lettering backwards. One way is as easy to me as another. Never use India ink in blocking out, as it will crack when it is dry. It is not necessary to block out the entire negative, as yellow or red cover paper can be cut out and pasted on the negative to cover the parts left from the opaquing. Some photographers make an untuned print carefully cut around the object and fit this on the negative, but it

does not equal the other method. To keep your opaque from spreading on the negative and getting on the figure, use a lead pencil, going around the subject; this gives a surface which will repel the opaque. Straight lines can be done with pen and ruler.

Ceilings The photographing of painted or carved ceilings, the interiors of domes in churches or public buildings, architectural details in roofs, etc., is not as difficult as it may at first appear. I have seen good work of this kind done with a hand camera in skillful hands. Where this is necessary in the absence of better equipment, the camera is laid upon the floor or a table and pointed at the centre of the ceiling or dome as nearly as the correct position can be estimated. The distance of the ceiling from the lens is next measured or estimated and the focusing scale on the camera placed at the correct figure for the distance, after which the lens should be well stopped down to insure sharp definition, even if the focusing scale is not set correctly. The exposure should be liberal, care being taken that no reflected lights fall upon the lens from nearby high windows. In serious work of this class a solid tripod is employed, with a swivel-jointed or adjustable (tilting) head, which permits the camera to be pointed directly at the ceiling and focusing done, as usual, from the ground glass beneath, the tripod holding the camera at a convenient height. The lens should be of the long-focus type, to insure correctness in drawing, especially in photographing domes or curved ceilings. When large images of distant details are required, a telephoto lens of moderate power is indicated; if this is not available the single combination of a rectilinear will give definite advantage. Success depends chiefly on careful focusing and correct exposure. The latter should be generous; it may be anything from five to thirty-five minutes, according to the character of the subject and the illumination available. When the ceiling or dome includes vaulted lights of plain or colored glass, a dull day should be chosen for the work, and double-coated or backed ortho plates employed, with a color screen adapted to the character of the subject and adjusted to the plate in use.

**Stained Glass
Windows**

The difficulties here are avoiding halation and placing the subject squarely on the plate. For the first the use of double-coated or backed ortho plates (with an adjusted filter) and the choice of a dull or cloudy day for the work will usually suffice. The color-sensitiveness of the plate should be carefully chosen to meet the color requirements of the special subject. The exposure should be ample up to the limit of possible halation, and development should aim at soft detail without hardness. To get the window squarely upright on the plate, it may sometimes be necessary to work from a stepladder or temporary scaffolding. Where these are not available, the swing back or bed must be used to secure the utmost advantage.

**Interior Archi-
tectural Details**

Where interior architectural details at difficult or inaccessible points are concerned, the telephoto lens becomes invaluable. Its advantages and methods for its successful use are fully dealt with in *THE PHOTO-MINIATURE* No. 90, to which the reader is referred. Similarly the technical points of architectural photography are treated in detail in *THE PHOTO-MINIATURE* No. 55, and need not be repeated here.

**Highly
Polished
Objects**

In dealing with fine optical instruments prepared for exhibition purposes, spectacles, eyeglasses, small figures in silver or bronze, repoussé or chased ware, etc., with highly polished surfaces reflecting light, it will often be found impracticable to prepare the articles for photographing so as to partially dull their surfaces. The following method, given in *Photography*, Vol. XIV. No. 710, may be very usefully applied in such cases.

A cylinder is made of fine tissue paper called by stationers "silver paper," and this is roofed over with another sheet of the same. The cylinder should be much larger in diameter than the object to be photographed, made of several sheets of paper gummed together. Some care should be taken to arrange these joints so as not to throw shadows on the work, but, except that it is not desirable to have one of them in the center of the main light, their positions are of little importance. A hole is



French clock
A. E. Sproul

now cut in one side of the cylinder to allow the lens to do its work, and a sheet of cardboard of suitable tint introduced to act as a background. The arrangement may be placed upon a table, and this adjusted in its relation to the window or source of light till the general effect desired is obtained. Supplementary reflectors, always outside the tissue paper cylinder will often be found useful in softening the shadows on the side opposite the light, and for some objects it may be found necessary to interpose a small opaque screen between the light and the tissue paper in order that by casting a shadow over a part of the framework it will throw into better contrast another portion of the instrument.

In using such a contrivance the direct light is softened and diffused, and even the deepest shadows are illuminated, though still softly, by the light reflector from the opposite side. The contrivance is neither costly nor difficult to arrange. In the case of a very large statuette or other object, a light framework might be necessary to keep the paper in shape, and a funnel-shaped extension from the cylinder to the lens might also be required. But such minutiae are not difficult to devise, to suit special circumstances and emergencies.

Photographing Bottles The two pages which follow are republished from THE PHOTO-MINIATURE, No. 48, now out of print. They embody the ripe experience of Mr. E. J. Davison, and I find nothing later on the subject which can replace what he then gave to his fellow workers.

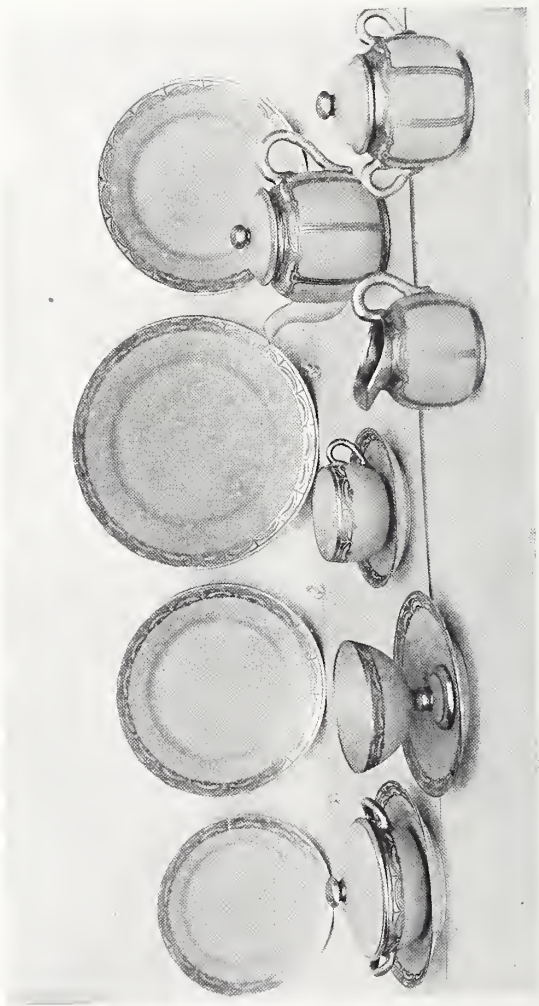
When photographing bottles and small articles, where it is desired to have a perfectly white ground, and where it is difficult to block out the background, an excellent way is to use a ground glass for the background and get the light through it from a window at the back. Where a window cannot be used, I arrange a mirror to reflect light upon the ground glass.

The uprights supporting the ground glass must be free and clear between, and have nothing to obstruct the light coming through the ground glass. Sometimes a background of white cardboard can be lighted from above, but the other is such a simple plan that I would advise its use. Where the oval or round surfaces of the

bottles act as mirrors and reflect the angle bars of the skylight, a screen of tracing cloth should be placed between the camera and the skylight, to cut off these marks. This precaution is necessary in a great variety of work, in order to avoid harsh high lights and images reflected into the articles themselves, if they are polished. Do not try to do away with every high light, however, for that would leave a flat-looking print.

Chinaware,
Bric-à-Brac In making photographs of chinaware, bric-à-brac, and similar small articles for commercial purposes, it is necessary to preserve the design, form, and details of the originals. I know of nothing which will accomplish this so well as an arrangement of movable shelves lined and edged with black velvet, on which the articles are arranged so as to show their valuable points. The illumination should be secured by light coming through tracing cloth. This will kill reflections and soften or obliterate shadows.

Among the most difficult lines brought to the studio of the commercial worker, that requiring the largest amount of skill and patience is decorated china having a polished and oval surface. One must use an orthochromatic plate, of course, and sometimes a color screen. About the only light that can be used is a side or top light, or both, coming through tracing cloth. This will diffuse the light and prevent a patch of high light often right in the decoration. A streak of high light on the edge and handle of a cup and saucer is an advantage. this style of lighting will show a roundness and softness not obtainable in any other manner. If one is not familiar with the correct position for such articles, it is best to consult some catalogue and find the standard method of presentation or display before attempting, and I would like to emphasize the necessity for sticking to standard positions with almost everything the commercial photographer gets in his shop. There is a right and a wrong position for everything, and much time will be saved if the photographer finds out beforehand just what that is. For instance, a cup and saucer must show the back as well as the front edge at the top, so that it must be tilted a little toward the camera, or the camera



Chinaware on light ground, intended for vignettted halftone
A. E. Sproul

look down on it and the swinging back used to keep the perpendicular lines rectilinear. A long-focus lens and long-bellows camera are necessary for this work.

Silverware, Where much silver or glassware is to be handled, a stand with moveable
Cut Glass shelves is a necessity, and the shelves

should be held on pins so that they can be placed at different distances apart. For cut-glass the finest light is a strong top light. This will give brilliance to the facets and liven up what would otherwise be dull. In some factories the pieces are dipped in whiting tinted a light gray before photographing. These shelves will do for silverware, which should be photographed before receiving its polish; but this can seldom be done away from the factory. A good method for dulling bright spots is to rub the place with beeswax and then polish with the hand. This is a simple remedy, and can be done easily and quickly with a little practice.

When flat surfaces have inscriptions that do not show, it is a good plan to rub into the engraving a black powder which jewellers use in their work. It will usually stick sufficiently well not to need anything mixed with it. When prints are to be made from negatives of colored subjects and the darker colors are too thin in the negative, those parts of the negative can be tinted with blue aniline, but it is very skilful work. The color is, of course, applied on the glass side. This dodge is old to most portrait workers, and enters largely into the retouching of commercial negatives of solid articles, such as metal ornaments and the like.

Cats For the following notes on photographing cats, a subject about which only the expert can speak profitably, I

am indebted to a chapter by Mrs. S. F. Clarke in "The Book of the Cat," (Cassell & Co.). After stating that a firm and rigid camera stand, a lens capable of giving sharp definition at large apertures, and a reliable shutter with ample length of rubber tubing are essential to success in this work, Mrs. Clarke goes on to say: "I like best to work in the open air, choosing a bright, warm day, when there are plenty of fleecy white clouds about; so that by taking advantage of their position in

front of the sun, and my curtains, I am able to modify the harsh contrasts incidental to working in broad daylight. If the light is too direct or strong, I diffuse it by stretching light blue art muslin curtains above the table or stand upon which the cats are arranged. These curtains run with rings upon cords stretched from the boundary walls on each side, so that they may be moved in any way the lighting may require. For background, a dark plush curtain will be found useful. Avoid figured backgrounds, as they detract from the value and crispness of the cats and accessories.

Three things are absolutely necessary to successful photography of cats for either commercial or artistic purposes—time, patience, and an unlimited number of good *quick* plates. Of all animals the cat is possibly the most unsatisfactory sitter should we attempt by force to secure the pose we desire. By coaxing we can generally get what we wish. Patience is the keynote of success. Before commencing, make up your mind as to what points you wish to show; then pose your cat gently and wait patiently until the pose becomes easy. She may jump down or take a wrong pose or go to sleep a dozen times or more, but never mind, give plenty of time. It is here where patience tells. Wait and coax until you see just what you desire, then release the shutter and make the exposure. At this point never hesitate or think twice—especially with kittens—or the desire pose may be gone, and will possibly cost you hours of waiting again to secure it.

Before photographing a cat for its general appearance or for any special points, it is essential to have it thoroughly groomed and got up as carefully as for show. Speaking generally, the coat of a long-haired cat should never be roughened; it altogether spoils the shape of the animal, and does not in any way improve the appearance of length, quality, or texture of the coat. In all cats where their markings are one of their chief points—such as tabbies and tortoiseshells, etc.—this roughening should be specially avoided. There is, possibly, one exception to this advice, and that is in the case of “smokes,” where it may be, and sometimes is, desirable to turn back a small patch of the fur to show

the quality and purity of the silver under-coat. In such cases the turning back must be done only for this purpose, and in such a natural way as not to interfere with the general flow of the fur or the shape of the cat. In posing a cat, it is well to remember its faults as well as its good points, so that the former may be hidden as much as possible and the latter displayed to the best advantage.

Isochromatic plates should be used in all cases where there are mixed colors in the cats' furs, as in tortoiseshells, brown tabbies; etc.; mixtures of red, black, and yellow cannot be truly rendered with ordinary plates. The only extra precaution necessary in their use is *absolute* freedom from actinic light in the dark room. Double ruby glass in the window, or, if artificial light is used, an extra thickness of red tissue paper around the developing lamp, will answer the purpose and make everything safe. With this little extra care, nice crisp negatives are obtained, while the relative values of the red, yellow and black seen in our furry friends are well defined in the resulting picture.

Cats used as models should, if possible, be in the pink of condition—the prettier the model the more pleasant the picture. The best time to photograph a cat is about one hour after a light meal. Immediately after a meal most cats want to wash and sleep. A hungry cat or kitten makes the worst of sitters; its thoughts are too much turned toward the inner man. Never overtax your cats, give them plenty of rest during a sitting, and never lose your temper and attempt by force to secure a pose; it only frightens the cats, and can never result in satisfactory work. Time and patience should always in the end achieve what you desire.

Pianos are not the easiest things in the world to photograph, although the most recent models, usually in light woods and finished with natural, waxed or dull effects, do not offer as much difficulty as the old-style instrument of rich, dark lustrous woods and brilliantly polished surfaces. The avoiding of reflections, getting color values and all the details of mouldings or similar ornamentation are the points needing special care. Generally



Self-player for piano catalogue
A. E. Sproul

pianos are photographed at the factory or in the city showrooms, both locations being usually crowded with other instruments. A clear, well-lighted room or space is therefore the first item needing attention. To avoid reflections, proceed as already advised for safes, i. e., spread a dark rug or cloth on the floor and devise a black cloth shield in front of the camera, with a hole for the lens. Screens covered with black cloth may be advantageously placed at angles at each end of the piano. For background, a light-covered sheet may be suspended behind the instrument. To secure color-values and the natural markings of the wood case, ortho plates and screens suited to the predominant color should be used. A long focus lens is essential to insure correct drawing.

The piano should be located well into the room in a quiet, uniform illumination, and so placed that the negative will include one end as well as the front of the instrument. The keyboard should be open, with the music rack in position. The height of the camera should be adjusted so that the lens is a little above the name of the maker, usually placed above the keyboard. The exposure should be ample—often it will run from ten to thirty minutes, depending on the light, the color of the instrument and the color-screen employed.

This work is much easier and more satisfactory if it is possible to photograph the piano in the rough at the factory, before polishing.

These are usually brought to the studio to be photographed. A little advice from the maker or expert will often help the photographer to show the work to better advantage, different sorts of lace or embroidery possessing their own distinctive characteristics. White or cream laces require a black background to bring them out effectively. Velvet or any soft, smooth cloth will answer this purpose. Colored embroideries on a white or light tinted ground or base often show to advantage on a pure white ground. After arranging the lace on its background (generally stretched on a board of convenient size), it is fastened by means of a few headless black pins, and then gently drawn away from close contact with the background so that it hangs loose

but in perfect order on the pins. This obviates the stiff, stretched effect sometimes observed in photographs of this class of subjects. If the lace is so filmy and delicate that it cannot be photographed in a vertical position, it should be spread on the floor and photographed from



Illustration for lace catalogue

A. E. Sproul

above by means of a camera with a tilting tripod top, or a special form of camera stand which permits the camera to point directly downward.

The detail of illumination is important. Laces should be well lighted, broadly but not harshly. An overhead light falling on the subject at a slight angle is the most favorable, giving an even illumination over the whole design, and supplying the little catch-lights and relief

points which add snap and life to the negative. As delicate half-tones are wanted in photographs of these subjects, the exposure should be accurate, tending to fully-timed rather than to under-exposure. For white and cream tinted laces or embroideries, a slow plate is advised, with diluted development; but, wherever color is concerned, an ortho plate and screen is essential to secure harmony in color contrasts.

Coins: For photographing coins, medals and
Low Relief all small objects having designs in low relief, where every marking is important, the simplest plan is to arrange the coins on a board covered with black velvet or felt, and place this on the floor about four or five feet from a window, using a camera with tilting table top, and pointing the lens down over the center of the collection of coins. The lens should not be a wide-angle. By this arrangement the photograph shows only one side of each coin. Generally, it is desired to show both sides of a coin or medal, the two sides or designs being linked by a line to connect them. To do this requires a slightly different method, as follows. Take two stout drawing boards, say 20 x 24 inches. At the center of one cut a narrow slot to take the camera screw, and sufficiently long to allow considerable movement of the camera on the board. Fix this board upright at right angles to the other board (which is to save as a base or platform for the coins). Strengthen the upright board so that it will carry camera and lens with absolute rigidity by means of brackets at the base of connection. Now cover the platform with black velvet or felt, and provide it with a hinged flap or cover of white Bristol board which will wholly cover the platform when fastened down over it. In this card-board flap cut pairs of circles, each just large enough to enclose the coins to be photographed, and "connect" each pair of circles with a neatly drawn black line. There will now be a pair of circles for each coin to be photographed.

Presuming that the coins are to be reproduced in their actual sizes, fix the camera on the upright board at double the focus of the lens, the lens itself being the same distance from the coins. Arrange the coins in the



For a men's store announcement
A. E. Sproul

circular openings of the hinged flap over the platform, turn the flap back over out of the way and make the exposure. Cap the lens and replace the hinged flap over the platform rearranging the coins so that each one occupies the other of the circular openings in each pair and,

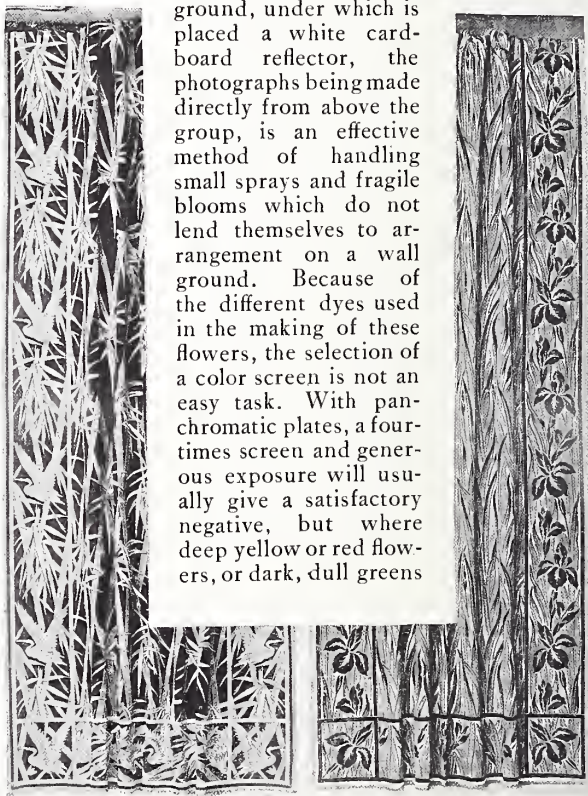
of course, reversing the coin in each case so as to show the other side. Again turn back the hinged flap out of the way and make the second exposure. With an ortho plate and light screen, correct lighting and fairly full exposure. This method will give a crisp, clean cut negative, showing both sides of each coin, arranged in pairs, and separated by exact distances in orderly array.

Fans,
Combs, etc. In photographing small fancy articles for catalogue illustration, such as fans, combs, brushes, boxes, etc., the arrangement of the articles suitable for their pleasing display must have first attention. Usually the firm for whom the work is done will lend an assistant familiar with this detail, a salesman who knows just how this or that will impress the possible buyer. Subjects of this class are generally arranged on a small table of convenient height, so placed that the items are evenly and well illuminated, away from harsh light. Sometimes a three-fold screen of light or dark fabric (as the case may need) placed to enclose the group of objects on three sides will be found advantageous. The detail of cast shadows will need careful attention where the articles are solid in color, as in the case of tortoise-shell and yellow colored celluloid combs, showing markings which must be reproduced in the photograph. Fans are usually spread upon a wall ground of appropriate color and fastened with headless pins. When the photographs are to be vignetted or shown with white grounds in the illustration, a very light ground and base must be employed and the plate should be large enough to give ample space around the articles. Ortho plates and screens are essential, and will need to be chosen for the proper reproduction of the colors involved. With dark, heavy subjects the exposure should be fully timed, and a diluted developer giving detail is advised. For delicate, light-colored objects, lighting and exposure should be combined to give detail and brilliancy, all suspicion of flatness being avoided.

Artificial
Flowers The general use of artificial flowers, plants, etc., in decoration and women's apparel today makes it necessary to insert a few words covering the handling of such items in

the commercial studio. Here, again, the arrangement of the subject should be put in expert hands unless the photographer has the rare gift of arranging flowers himself. Neutral-tinted fabric or cardboard generally gives the best background effects, care being taken to avoid dark or heavy shadows. A glass platform at about

6 or 8 inches from the ground, under which is placed a white cardboard reflector, the photographs being made directly from above the group, is an effective method of handling small sprays and fragile blooms which do not lend themselves to arrangement on a wall ground. Because of the different dyes used in the making of these flowers, the selection of a color screen is not an easy task. With panchromatic plates, a four-times screen and generous exposure will usually give a satisfactory negative, but where deep yellow or red flowers, or dark, dull greens



Window curtains

A. E. Sproul

are concerned, a ten-times screen may be needed and the exposure will run into minutes.

**Clothing
Fabrics**

Here, in the case of anything made-up for sale, as in women's costumes, children's suits, hats, shirts and the like, the subject must first be pleasingly arranged as if displayed in the maker's showroom. Illumination is the key to success. Work well under the light to secure uniform lighting, with a high side light, if this is available, and get all possible life and sparkle in the subject, watching the cast shadows at all times. See that the illumination brings out the characteristic texture of the object photographed, and smooth out any unsightly folds due to misarrangement or the character of the fabric. If the subject is draped, as in the case of couch covers, curtains, etc., see that the lines fall in a pleasing manner, giving gentle or sweeping curves according to the nature of the goods. Ortho plates, adjusted screens and correct exposure will do the rest. Small articles, such as scarfs, ties, gloves, etc., should be disposed on a large sheet of paper running under and well up behind the items, forming a continuous background without dividing lines.

The only difficulty in photographing **Leather Goods** leather goods is to insure the reproduction of the markings of the skins, the texture or finish, and even illumination or softness of effect. It is advised to work in a quiet light and give generous exposures, using ortho plates and screens, and diluted development. The exposures will be lengthy, as leather goods are usually dark and heavy in color, but under-exposure means sure failure. Small leather articles can be suspended by white or gray thread against a similarly colored ground. Large items should be so placed that the camera looks slightly down upon them, giving the top edges, and showing one end as well as the front of the subject.

**Copying
All Kinds**

The making of copies of documents, deeds, records, wills, etc., is an important branch of commercial photography. Since, however, it is exhaustively dealt with in **THE PHOTO-MINIATURE No. 41**, there is no need to enter upon it in detail here. This work calls for a fairly large

selection of color filters if the originals are varied in character, but for ordinary record or copy work (straight black and white) the ordinary slow plate and a clear working developer will suffice. For work having color, orthochromatic plates and the color screen are essential. Where there are no ultra blues or violets and only greens



Alligator skin bag
A. E. Sproul

and dark browns, the Seed L Ortho and Cramer Slow Iso or Imperial Non-Filter plates without screens will answer every purpose. Any lens of moderate length of focus will serve our purpose, but an anastigmat will give the best results. For paintings having delicate colorings a screen of medium depth is indicated, but where purple or sky - blue are met with it will be better to use a deep orange screen. Continental commercial workers

copy paintings in direct sunlight. This is very necessary where the painting is old and many of the shadows very deep. Whether copied in the sun or in the studio, it is necessary to get plenty of light into the painting. The direction of the light must be such as to give no harmful reflections, and sometimes this is very difficult to arrange. A light that will avoid reflection will often illuminate one side of the picture more than the other, giving uneven illumination. A good plan is to have a copying stand where both camera and picture are held by the same bed, such as that illustrated in THE PHOTO-MINIATURE No. 13, the stand being on rollers, so that camera and picture can be turned first in one direction and another until the proper lighting is seen. This method holds good also with any picture having a glossy surface. When pictures framed under glass are to be copied, the glass must be removed unless one has lights of equal strength from both sides similar to those used by process workers. Simple combinations can be made with Welsbach lights, reflectors on each side, and the lights carefully cut off from the lens. Another good method with small articles is to lay them on the floor and look down on them with the camera. Folmer & Schwing have a vertical stand which is helpful in this work. Where drawings and other subjects having a dead surface are to be copied, the light can fall squarely on the subject, care being taken to have it even. For black and white engravings, having line work and great contrast, a process plate will yield the most satisfactory copy of such a subject. With proper handling, negatives similar to wet plates can be had on these plates. I am a user of slow plates rather than the rapid brands, a Seed 26 x covering most of my needs. A slow plate has more latitude, both in exposure and developer, than a rapid one. Where a painting has great contrast, it is better to use a non-halation ortho plate with a screen. This plate softens the chalky lights and makes a soft negative where a single-coated plate will give somewhat harsh contrasts.

Legal Work Sometimes the commercial photog-
Outdoors rapher will be called upon to make re-
cords for legal purposes, use in court,
etc. The photographic side of this work calls for no

special instruction, being like other view or outdoor photography. But it is important to keep a detail record of each negative made for legal purposes. This record should show the position of the camera, the exact locality of the place or building, and the direction in which the lens was pointing. These details should be lettered in the negative, thus: "Looking N. E. at S. W. corner Sixth and Locust streets, K. C., Mo. Camera located fifty feet from lamp-post on S. W. corner (or, at S. W. corner). Taken January 15, 1903, by——." Do not make a print from any legal negative until such data is shown, so as not to burden your mind with remembering these circumstances; lawyers will usually accept such wording and waive a personal appearance in court. Records of these exposures in legal work should be kept in a separate book for easy reference. One set of prints should have muslin back and top for insertion in the "pleadings."

Commercial Interiors

This is a large field and will demand all the skill and resourcefulness of the photographer because of its widely varying requirements. It is fully dealt with in THE PHOTO-MINIATURE No. 30 to which the reader is referred. Similarly Architectural Photography, dealt with in THE PHOTO-MINIATURE No. 55 need not be more than mentioned here. The modern anastigmat lenses and extreme wide angle objectives now available, together with the general use of flash powders as supplementing daylight, make both branches of work simpler in actual manipulation than they used to be. Choice of point of view and the careful illumination of the subject are the two points most needing attention. Non-halation ortho plates, unscreened unless the subject has more than the usual amount of coloring, lenses well stopped down, and diluted development make up the procedure followed by experts.

Dogs

Experts disagree as to whether dogs are best photographed in the studio or out-of-doors. E. J. Davison inclines to the first method. He says: A certain amount of familiarity with dogs and their points, differences of breed, characteristics, etc., is desirable, if, indeed, not essen-

tial to success. Patience, quickness and real interest in the result are equally essential. Dogs are as sensitive as children about new voices and faces, and they are quite as quick to analyze the spirit of the photographer. Then we shall often have to contend with the owners. Speaking of these points, Mr. W. H. Mapes, an experienced worker, says truly: Most dog owners want the picture to show the ears erect, and the animal on the alert, just as a great many people insist on having children taken full length, standing. And this, notwithstanding the fact that many dogs—pugs and spaniels especially—are so fat and lazy from overfeeding that they can hardly move, and seem threatened with heart failure every time they climb a flight of stairs. The most frantic efforts on the part of the photographer will hardly rouse such subjects from their state of torpor, or cause more than a few sleepy winks or a stupid stare. When it is my lot to get such a subject to work with, I proceed to handle him without gloves. I growl, bark, yelp, slam doors, cry like a cat and scratch parlor matches until the animal is actually tortured into some semblance of interest and activity. Other dogs, the nervous, intelligent fox terrier for example, will hear and respond to the slightest sound, and are so quick that I have spoiled many exposures by opening the shutter too quickly and causing the flaps to rustle, and the dog to instantly change position. Fox terriers require the most expert handling. A slight scratching on the camera box or the crumpling of a piece of paper in the hand is usually sufficient to fix their attention and enable their owner to get out of range of the instrument; and often the sight of a rubber ball will throw them into a jaunty, saucy position, which is superb in showing the characteristics of the breed; for a photograph of a dog, whatever the breed, must show that he has blood of good quality in him, must show his style, his carriage and his good points, or else it is but little more than a failure. Setters and pointers are best posed with a kitten or pigeon to fix their attention.

For photographing dogs without their

In the Studio owners I have in the studio a tall table, three feet six inches high, the top of which has been thickly coated with warm glue and then

sprinkled with coarse sand. A board, similarly coated, hangs in front, to hide the legs of the table. A plain screen, either lighter or darker, as best suits the dog, is hung behind. The dog stands on this table. If the dog wears a collar or is used to the leash, let his master hold him, but remove the chain or strap and use instead a piece of very flexible, dull copper wire. If this shows at all it is only slightly, and can easily be spotted out. The owner may stand behind the background, looking over it, and, of course, well above the top of the picture. More often the holding should be done by some third person, the owner, meantime, talking to the dog. When the dog is in position, the owner, telling it to stand still, walks slowly out of the range of the camera. If the dog does not watch him with sufficient alertness, the necessary expression of interest can be had by breaking a piece of biscuit or by one of the many means suggested in an earlier paragraph. Focus as soon as the dog is in position, draw the slide and hold the bulb ready to expose the plate at the right moment. Some plates will doubtless show movements, but if hesitation and wondering whether the dog will move be put aside, you will get three good negatives out of six plates.

A lawn is the best place for conducting operations, since the grass, when out of focus, makes an excellent background. The animal must be placed in a sitting position, and the camera lowered until the lens is about three feet from the ground. A dog's head can be taken in three ways: either front view, three-quarters, or profile. As a rule, front view is best, since the expression of the eyes can be seen much better. A profile view shows the mouth and configuration of the ears better, but which way the dog is taken depends upon the shape of his head, and he should be carefully examined on the ground-glass from various view points. The appearance of a sporting dog is sometimes improved if he holds a dead pheasant or partridge in his mouth. If a three-quarter view is required, care must be taken that both eyes are included in the picture. It is of no use having head-rests or similar articles for keeping the sitter in position, nor should he be tied up, If all the

operations are conducted without vigorous movement, the average animal will not prove himself troublesome or reckless. If the dog will not sit still, it is of no use shaking or beating him; to do so would only make him worse. Most dogs are usually restless for a few minutes when brought to the camera, but they soon settle down as desired. In order to be able to replace the dog in the proper position, should he move after he has been focussed and the slide inserted, a small twig or stone is pressed into the ground close to the right or left fore-paw. If he happens to move, he can thus be replaced in almost exactly the same position without the trouble of refocussing. When composing the picture on the focussing screen, it is best to give a slight margin all around, to allow for accidental movements. This should be nearly an inch for a half-plate camera. The dog should be made to turn his head into several positions, so that different expressions can be examined on the ground-glass. When the best expression has been found, the position of his head must be noted, so that it can be obtained again when the dark slide has been inserted. The background of grass must be carefully examined to see that there are no paths crossing it, or any trees or other objects. A lawn forms the best background, since it contrasts effectively with almost any kind of dog, and, when thrown completely out of focus, has a woolly appearance, that is soft and agreeable. A cloth can be used as a background, but it should be stretched on a wooden frame, to obviate creases, and placed sufficiently far behind the "sitter" to be quite out of focus. Since the lens is very near to the "sitter" when taking large portraits, it will probably be necessary to use a small stop to bring the nose and neck sharply into focus. It is on this account that such a good light is necessary. When taking a profile view, stop $f/11$ or even a larger stop may be used, since the depth of focus required is not so great.

Some dogs are more quiet when lying on the ground, and their portraits can be taken when in this position. The camera must be lowered considerably, or too much of the top of the head will show, and it will be difficult to throw all the background completely out of focus.

With some dogs this position is difficult to manage, since the fore-legs are apt to spoil the picture.

For work of this kind the lens should be as rapid as possible and of the long focus type to secure correct drawing. Of all cameras undoubtedly the reflex type is the best, since it shows the movements of the subject up to the moment of exposure and enables the photographer to follow his subject where this is needful or desirable.

Much of what has been said about
Horses photographing dogs applies in getting good photographs of horses. Long focus lenses, extra-rapid plates and a reflex camera are now-a-days regarded as essential in this work.

The most desirable position for a single horse is one which shows the animal standing on all four legs, a good line to the back, and the head erect, with ears forward and attention alert. To get this position, set the camera squarely facing the horse in side profile, but sufficiently toward the horse's head to get a view of the four legs. To secure the right poise of the head, get an assistant to stand with a barrel containing a brick, or other device to arouse attention, about thirty feet away in the right direction. When ready for exposure let the assistant roll the barrel away from the horse. This will awaken attention and alertness in the animal, and you will get just the poise of head and neck desired. This plan was suggested by Mr. John Rösch years ago, and I find it invariably successful. Sometimes the horse, if left to himself at ease, will assume a pleasing position without any effort. The less fuss made with the horse the better.

Those intending to take up the photo-
Cattle graphing of live stock should make a specialty of cattle. Groups pay better than single animals and are not so difficult. Many breeders prefer sketches of their bulls or cows, even though they do not correctly represent the animal. Some animals have a defect here and there, and these defects must be hidden; this the "artist" can do,—the photograph tells the whole truth.

Success in photographing live stock depends upon the photographer's knowledge of the animals concerned. One must know something of the good points of the

various breeds in order to know when these points are showing themselves before the camera. For instance, what the stockman calls "a beef animal" must be photographed from the front so as to show all beef; a Jersey must have the rear most prominent so as to exag-



Silver mesh bag

A. E. Sproul

gerate the udder. To have an animal standing just right requires a quick eye, as the change in position of a foot will often throw the back line out of shape. The position of the head must be just so high or the back will not be right. Raising the head too high will make the back hollow; this fault also appears if the feet are too

far back and forward. In the stock-breeder's language one must know when an animal is "on its feet," which means when each foot is supporting its proper share of weight.

A long-focus lens, say 14 to 16 inches for an 8 x 10 plate for single animals, is a necessity; it should be quick-working, i.e., having a large working aperture. A reliable shutter and quick plates are equally essential; for moving objects a focal plane shutter, of course. Unless a long-focus lens is used, the views are apt to distort when quartering pictures are made, and such views are often required to show the spread of the legs, and the width of hind quarters and back. In photographing beef animals it is desirable to show the belly as near the ground as possible. There are two ways of accomplishing this. One way, and this should be adopted where it is practicable, is to stand on an elevation high enough to show the back. Another plan is to have the animal stand in grass. In the absence of grass, straw spread on the ground will serve. A good way to show an animal's back is to work from an elevation and have the animal eating off the ground, facing the camera. This will throw the back up and you will get all there is of it. The backs of some Hereford cattle are enormously broad. Beef cattle are rarely difficult to photograph, as they are heavy and sluggish, provided they have had "proper training." This differs greatly with the herdsmen, some being gentle and kind and their animals consequently docile and easily handled, while others, who are rough, lose their patience and their animals are timid and restless, being afraid of a thrashing.

An animal on his own heath is at ease and acts naturally. At a show he is excited and his attention is constantly divided, the old bulls especially being ready to make trouble on slight provocation. These fine cattle are kept in barns and carefully looked after as valuable property. Bulls that are worth from five to ten thousand dollars must have every attention, hence they are like spoiled children and just as contrary when excited. I have done a great deal of photographing among cattle at shows, and the difficulties are many. Perhaps the wind will be blowing a gale of dust, or the flies may be so bad that

the animal keeps head, ears, tail and feet going, and one must be on the alert to take advantage of the occasional quiet moment. The head must be erect, ears forward, etc. The best way to secure this result is to focus your subject and then have another animal led out in front. While your animal is in the first moments of his curiosity make the exposure, for in the next instant he will get restless or lose interest altogether.

Cemetery Work

To the beginner in commercial photography no work will seem easier than the photographing of tombstones, monuments, vaults and grave markers, and he will not know why his work is unsatisfactory until he is told that his horizon line is entirely too high.

For the average monument the camera should not be over eighteen inches from the ground. This will make the object stand up bold and appear in much better proportion. In some cases the camera should be still nearer the ground, and it is necessary to have a tripod that will shorten, so the camera can be fixed as low as twelve inches from the ground. A swingback will be necessary, and the lens should be one of moderate length of focus, say 10 inches for an 8 x 10 plate. Excepting where the surroundings will help the general effect, the monument should fill up the plate well. It is also well to stop the lens down only so much as to get the object sharp, leaving everything else out of focus. Non-halation plates should be used. Some monuments photograph better on cloudy days and others on bright; this is a matter purely of choice, as is the detail of lighting. If the inscription is to show, the strongest light should come from one side rather than directly from the front, to secure relief and shadow. The opinions of people will differ, some wanting work done on bright days so as to get the shadows, others on dull days, so as to avoid them. The manufacturer usually prefers sunshine, on account of the additional life the shadows give to his work.

The photographing of decorated graves is not a subject that every one cares about. The sexton should know beforehand that the photograph is to be made, and the grave should be neatly filled and covered with sod

if possible. It is desirable that flowers should be so arranged as to hide the newly made grave. Many graves are covered over with evergreens, and this affords an excellent background for the flowers.

Panoramic Pictures The production of panoramic views is one of the most profitable commercial lines, and applies to all branches of outdoor work. The views may be made with the well-known Cirkut camera of the Century Camera Company, or by joining several separate prints from separate negatives, or by printing from several negatives on a single strip of paper. The use of the Cirkut camera needs no explanation here and this instrument can be recommended as simple in operation and efficient in results. For the method of printing panoramic views from several negatives on a single strip of paper, the reader is referred to George E. Mellen's clear account of his process in THE PHOTO-MINIATURE No. 73, Panoramic Photography.

Notes and Comment

* There is a gentle insistence in the letters received from old and new subscribers that THE PHOTO-MINIATURE would be more interesting if the personal note were emphasized in these somewhat vaguely editorial "Notes and Comment." The suggestion is welcomed, and the personal note comes in forthwith. If it does make the magazine more interesting, more readable and more helpful to its readers, no one will be more pleased than myself. Write me about it and, please, do send me any other suggestion you can offer likely to make THE PHOTO-MINIATURE more intimately interesting and valuable to YOU.



Just to add stimulus to this new beginning of an old acquaintance, and to find new ways of making THE PHOTO-MINIATURE fill the heart's desire more completely, I propose to offer, every month, a cash prize or award for information which I need for YOUR helping. This is the one hundred and tenth number of THE PHOTO-MINIATURE, and we have covered more than a hundred different subjects, chosen as having a direct interest to amateur and professional photographers. But perhaps the one topic in which YOU are vitally interested has been overlooked. I want to know about that. So the prize award this month is a check for ten dollars, which will be mailed on September 30 to the reader who sends me, before that date, the most practical suggestion for a PHOTO-MINIATURE monograph. By "practical" I mean a suggestion for the treatment of a subject of live photographic interest, the discussion of which will be helpful to the general body of photographic workers. The suggestion should embody the title of the subject, and the different heads or divisions of the sub-

ject under which it should be treated, to give it the greatest possible interest and usefulness to you.



This provides a simple method whereby we can get in closer touch with each other, and the award is sufficient to cover the ten minutes' thinking and writing necessary to the sending of the successful suggestion—at the rate of a dollar per minute. The suggestion can easily be put into a hundred words on a single sheet of notepaper. Individual acknowledgment of these suggestions cannot be made, but the result of the competition will be published in the first number of *THE PHOTO-MINIATURE* published after September 30 i.e., in No. 112. Readers may send in as many suggestions as they desire. The more the merrier.



The most interesting photographic book of the year, from the professional photographer's viewpoint, is "The Association Annual," published by the Photographers' Association of America as a souvenir of the recent convention held at Milwaukee, Wis. In form it is a handsome quarto of about a hundred pages. The text, under the title, "Attracting Business to the Studio," reports an imaginary meeting of successful photographers, held for the purpose of discussing "ways and means." This is the work of Juan C. Abel, and is decidedly the best bit of work this erratic genius has done in many moons. The illustrations, which are numerous and exquisitely printed, represent the current work of leaders in the professional field.



The title pages and index for *THE PHOTO-MINIATURE*, Volume IX, Numbers 97 to 108 inclusive, are being prepared for the press, and will be sent as soon as ready to all asking copies for binding purposes. A two-cent stamp should accompany the request.



That Grand Old Man of American photography, John Jacob Bausch, founder of the Bausch & Lomb Optical

Co., Rochester, N. Y., celebrated his eightieth birthday last month in characteristic fashion by a contribution of \$10,000 to the fund established by the late Henry Bausch to aid the employees of the firm in various necessities. Despite his years Mr. Bausch enjoys splendid health, comes to his office almost every day, and takes a lively interest in the work of his company. On the morning of his birthday his employees and associates surprised him with the gift of a solid silver humidor, 18 in. long by 12 in. high, made by Gorham, and representing in miniature the "Bausch & Lomb Optical Institute"—the original factory in which the firm began business in 1865.

Herbert Ponting, F. R. P. S., the official photographer to the British Antarctic Expedition, 1910, will depend wholly on Burroughs, Wellcome & Co.'s photographic Tabloids during the long journey to the Pole, as did Sir E. Shackleton on the last expedition. This speaks well for "Rytol" and the other B., W. & Co. specialties in the two vital details of efficiency and keeping quality.

Twelve years ago Burke and James, of Chicago, began their business with eight employees, working in a single room. Today they are building a new factory and showrooms covering almost 200 x 100 feet, which will consolidate the three factories now occupied in the production of their innumerable specialties. This is splendid progress and has been well earned by the service offered by this enterprising and wide-awake house.

"With Other Photographers" is the title of a thin oblong quarto of 90 pages, in which Ryland W. Phillips, of Philadelphia, shows how many of the leading professional portraitists produce the work by which they have won fame and reputation. The scheme comprises a page of text telling of the man or woman and his or her methods, with full page illustrations showing the finished portrait, then the first rough proof, and finally the sub-

ject seated under the light being photographed. It is a book which every professional, or amateur interested in studio portraiture, should study with care for the many profitable lessons and points its pages offer. The volume is well printed on art paper and strongly bound, being published by The Eastman Kodak Co., Rochester, N. Y. The price is \$2.50.



Ozotype: Its Necessity and Use, by Frank Dobson, is a simply written treatise in which an English worker describes this printing process from a fresh point of view, and in a way which should further extend its popularity. Personal methods and formulæ are given, and there is an interesting account of the production of two or more colors in one print which is worth more than the cost of the pamphlet (35 cents). The capacity of the Ozotype method for producing prints at night (the process being independent of daylight) may be gaged from Mr. Dobson's statement that he has taken as many as six 12 x 15 Ozobrome prints from a bromide enlargement in a single evening, the original bromide print remaining "as good as new" for future use. This is "going some" as current phrase puts it. When will the Eastman Kodak Company put its splendid organization of instructors and demonstrators behind the popularizing of this simplest of carbon printing methods?



The publisher of *The Camera* and *Bulletin of Photographer* (Philadelphia) asks me to warn the public against a fraudulent subscription agent offering these publications at cut prices in combination with "The American Annual." The simplest way to avoid trouble and loss is to send your subscriptions direct to the magazine desired, or order through a reputable dealer or bookseller.



Practical, readable, helpful are the three words which best describe the 1910 Imperial Handbook, offered by G. Gennert, New York and Chicago, to all who care to

send for it. The Imperial Handbook is published in the interests of Imperial Plates, for which G. Gennert is the American agent, but apart from this feature it has 22 closely printed and beautifully illustrated pages dealing with "Errors in Exposure and Development" with a chart of facsimile negatives showing correct and incorrect exposure and development; "The Use of Backed Plates," "Winter Photography," "Holiday Work," "Home Portraiture," "Tank Development," "Latitude," "Failures," etc.



The advantages of color-sensitive or isochromatic plates, and the necessity of using "adjusted" filters with such plates, are two things which photographers are strangely slow to appreciate. As a concise statement of why, how and which in the whole matter, I advise the reader to send to the G. Cramer Dry Plate Co., St. Louis, Mo., for the new booklet "Isochromatic Landscape Photography." This is the latest treatise from R. James Wallace and goes to the root of the matter in a logical and interesting way—as Wallace does in whatever he touches.

Commercial Brevities

Describing, from personal knowledge or experience, specialties which deserve to be more widely known.

Azol is a concentrated liquid developer recently introduced on this side, but well known and widely used in Great Britain. Its distinctive points are great activity, freedom from any tendency to stain or fog, economy and convenience in use. It is equally well adapted for the development of plates, films, gaslight and bromide papers, lantern slides and transparencies, requiring only dilution with water before use. In my experience I find Azol especially valuable in cases of slight under-exposure, such as are common in hand camera work. This, with its capacity for giving an unusually long range of gradation, should make Azol a favorite with amateurs. A booklet giving complete instructions in the use of Azol for all purposes can be had on request from the U. S. agent, Edward Rock, 118 East 28th street, New York.



Seltona is an imported print-out, self-toning paper, the toning salts being incorporated with the emulsion. By simply printing a little deeper than is desired in the finished print, fixing in plain hypo solution and washing, it gives rich sepia or brown colored prints possessing remarkable gradation and brilliancy. Purple-brown and black tones are readily obtained by slightly modifying the manipulation. Seltona comes in a variety of weights and surfaces: postcards, smooth, matt and heavy cream crayon; also in a separate series, "Tintona," where the emulsion is coated on tinted paper bases. Seltona is not as widely advertised or known as it deserves to be, so that it should be ordered direct from the importer: J. L. Lewis, 379 Sixth Avenue, New York.



Portrait
J. H. Garo, Boston, Mass.

The Photo-Miniature

A Magazine of Photographic Information

EDITED BY JOHN A. TENNANT

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Photography as a Business

A conservative estimate of the number of men and women in America and Great Britain devoting their capital, time and labor to photography as a business would probably place the figure at a full hundred thousand. This estimate is restricted to the field of professional portraiture and the allied lines which come, incidentally, so to speak, to the professional studio, without attempting to number those who follow commercial, industrial or other special branches of photography. Add to this the fact that we have at least three "schools" busily employed all the year round in training would-be professionals, and the reader will agree with me that the time is ripe for a "first book" of information about this field.

There is, to be sure, no lack of information about professional photography. It is the single topic and breath of life for half a dozen weekly and monthly journals. But, as far as my recollection goes, no one of these journals has ever attempted to present a systematic or comprehensive summary of professional photography as a business—how to enter it and make the best of its possibilities. Here we have the purpose and scope of this monograph. It is, of necessity and by deliberate intention, a "first book," a brief introduction to the field, aiming to tell some of the elementary things which the young professional should know at the beginning of his business career. Like all "first books," so this will touch briefly on many things which deserve ample dis-

cussion, and in the end leave more unsaid than said. Photography as a business is a big subject. The leading professional journal in America began to tell about it nearly fifty years ago, and is still sticking to its text with undiminished vigor and vocabulary. Small wonder, then, if this little handbook lack completeness! But brevity is the soul of wit and little books are easy to read.

Another foreword. Getting ready for business is one thing and actually doing business is another. In these pages we will largely concern ourselves with preparations for business: The man and his ideals; the place of business, the equipment and working materials; with some of the other preliminaries which must precede everyday practice. With these things set down in order as a basis, I hope, in a later number, to publish a second monograph which will deal especially with methods of getting and doing business, ideas which are worthy of a practical trial or have already proved successful in application, and so on. But the groundwork must come first, and this is given here from actual experience in the field.

The young photographer about to start in business should have, first of all, a definite ideal as to his place and work in the profession, and strive with might and main to reach this ideal. He has to make a living and something more from his profession, and, in the end, it all comes down to making portraits which please people and getting the best possible price for his work. If his ideals are based on a common-sense estimate of his abilities and he puts sufficient work behind his ideals, there can be little doubt about his ultimate success.

Grouping professional photographers as we find them, we may roughly place them in three classes. First, we have the **Three Classes:** conventional photographer, usually short on ideals and business training, seeking only to do a certain amount of business, pay his bills and, if possible, put aside something for old age or the proverbial rainy day. This man rarely gets above the average in work or methods. If he has health, a fair amount of luck in location and

competition, and is moderately careful, he makes a satisfactory living and fills his place in the world.

At the other end of the scale we have **The Pictorialist** the pictorial portraitist, usually an amateur who comes into the profession from the top. This man knows something of art and his ideal is portraiture with art or pictorial quality in it, whether it pays or not. He has culture and refinement, and often a helpful personal connection. He employs few if any of the usual trade methods, has no display at his entrance, employs no receptionist, and more often than not does all his work in a couple of rooms on the top floor of a building apparently wholly unsuitable for photographic business. But his personality and work attract favorable attention, and he puts a high price on his prints. The end is problematical, some have succeeded and others have failed. As a class, pictorial portraitists have not yet made any considerable mark on the life of the profession.

The Modern Professional Finally we have the modern professional, whose ideal combines whatever is best in the two classes already mentioned. He is capable in technical photography; he is familiar with business methods in the broadest sense; he knows how to put distinctiveness and charm into his work and how to properly exploit its value. This class is growing in numbers. They are prominent in their cities, not so much because of wealth, but as professional men, devoted to a profession worthy of respect and patronage. Such men make money and get the best out of life. Their acquaintance is worth cultivating and their ideals and methods are worth study and following. In these pages we will see something of these ideals and methods.

The Question of Location The first important question facing the man who has determined to follow portraiture as a business is the question of location. Here he will need all his observation, intelligence, judgment and foresight. Experience has conclusively demonstrated that even a clever photographer cannot hope to win lasting success if handicapped by a poor or unsuitable location, while a mediocre worker

will often enter upon a successful career by the aid of a happily chosen location.

A great many considerations enter into the choice of the right location, but, in the end, this choice depends on the photographer's estimate of his abilities, the amount of capital at his command, and the class of trade he intends to seek. Personal preferences between large and small towns, the question of competition, health and family matters are minor points which rarely affect ultimate success or failure.

Some small towns offer attractive opportunities. The college or university town, such as Ann Arbor, Mich.; Madison, Wis.; Oberlin, Ohio; Durham or Oxford, Eng., is an attractive field for the man who can handle the peculiar problems it presents. The manufacturing town, of from twenty-five thousand to one hundred thousand inhabitants, with a steady outflow of wages all the year round, means more than a competency to the photographer who has the commercial instinct plus. The summer or winter pleasure resort is a profitable location for the man with method and hustle who can crowd the work of the year into a few months. But the man with sure ability and ambition will find the largest opportunities in the big city, where there is an everchanging and everincreasing stream of possible patrons passing his doors. The big city has a place for every sort of worker and puts every man in his place. Its competition is intense; its expenses are formidable; and it demands continual and untiring work. But the real risks are few; the uncertainties center about the man rather than about the volume of business; and the reward rarely fails the man who makes good.

In the large city, location is all important. Close personal investigation and observation, careful calculation of ways and means, and a continual reference to the kind of business sought for, must be the guiding factors. As far as capital is concerned, the amount will depend on the scope of the business proposed and its character. The photographer who has capital sufficient to guarantee his rent for a year and to provide a good working equip-

ment, so that he can begin without debt, need have little fear, though he may experience some anxiety and find himself in a "tight place" during his first year. Finally, whether the city be large or small, no location will enable a man to "win out" without work and enterprise. Location is a powerful influence for success or failure, but success means the combination of location and the man. The big city is not the place wherein to "try out" one's ability. For that uncertainty the smaller town is better adapted, and the larger opportunity will wait the outcome.

Building
a Studio Having determined upon the location, the photographer must consider the construction and equipment of his business premises. Here, again, the question of available capital is an important factor. In the larger city it may be possible to find photographic premises available for occupancy in a favorable section for the kind of business proposed, but such opportunities are not common. The alternatives may be the adaptation of a dwelling or suite of rooms for photographic purposes, or the building of the studio from the ground up. In small towns the latter will generally be most advisable.

The construction and equipment of a studio is fully dealt with in *THE PHOTO-MINIATURE*, No. 50, and the reader who seeks technical details will find all his requirements worked out in that number. Here it may suffice to point out that the introduction of rapid portrait lenses, the increasing use of reflector systems and screen devices, and the rapid plates now available—in a word, modern conditions—make the problem of studio-building much simpler than it was ten or twenty years ago. The large area of skylight then required, expensive in construction and maintenance, is now wholly superfluous. A single slant light ten or twelve feet in height and facing north, or a vertical light with a small skylight, will meet most of the everyday needs of the portraitist. The installation of an electric lighting system for dull days, winter use, and the production of special lighting, is advisable. One of the simplest forms is the use of a number of powerful incandescent lights fixed to the bars of the slant or vertical light. These

are set in rows, each row being separately controlled according to the height and direction of the light required. With such a system, reflectors are essential to equalize the illumination of the subject.

If the studio light faces the north, with a slight tendency to the north-east, the working conditions will be most favorable for all times of the day and year. Sunlight in the studio is undesirable, making the use of cumbersome blinds necessary and giving troublesome reflections. The studio should be so placed that it is convenient of access from the reception and retiring rooms. When possible, it is desirable to have a pleasantly furnished room between reception room and studio. From the reception room side such a room gives a convenient place for conferences with visitors away from the distractions of a sometimes well-filled reception room, while from the studio side the room offers a convenient place into which the friends accompanying sitters may be invited to retire if not desired in the studio itself during the sitting. Workrooms and finishing rooms should be located well away from the studio, and there should be no passing of employees through the studio to these rooms. The interior equipment of the studio and other rooms will be dealt with in later pages.

**Buying a
Business**

It is estimated that at least three thousand American studios change hands every twelve months. This serves to show that many photographers prefer buying a business already more or less established to the alternative of building a new business. Hence it may be profitable to discuss a few of the points which should be considered in the purchase of a photographic business.

In all professional journals one may find advertisements offering business for sale or exchange. Almost invariably these announcements are tantalizingly brief, and seem to offer far too much for the price asked. Evidently they are intended chiefly to invite investigation. The first step, then, when one is attracted by an offer of a business opportunity in a desirable section, should be to write to the advertiser, asking for full particulars, i.e., the things not mentioned in the advertise-



O. H. Boyé, San Francisco, Cal.



O. H. Boyé, San Francisco, Cal.

ment about which you desire information. If these items can be put in the form of questions requiring specific answers, so much the better. While awaiting these particulars, look up the record of the town or locality in which the studio offered for sale is situated, ascertaining its present population and rate of growth, the character of its residents and the local industries, its special features, such as schools, colleges, large industrial works, etc., likely to offer scope for the prosperity of the business, the amount and character of photographic competition, the nearness of other towns and whether they offer serious competition and so on. With this information, should the advertiser send you promising particulars of his offer, a personal visit to the studio for closer investigation is advisable. This visit may advantageously extend over a few days or even a week or two if the business seems worth while.

Turn-over and Net Profits If a personal inspection of the town, the location of the studio and its business possibilities give a favorable impression, arrangements should be made for a close investigation of the business offered for sale. This should begin with the books of the studio, which should show the yearly returns (or turn-over) and the net profits of the business—say covering a period of two or three years. It is desirable that these two items should be considered together, for it may be that a business doing a turn-over of \$20,000 a year will show less profit than one with half that turn-over. Thus a comparatively small business, with fairly high prices for its work and little loss in bad debts, will show a much larger net profit per year than a big popular business at low prices, leaving only a small margin over cost of material and standing expense. As a general thing, it will be fairly easy to ascertain the volume of business done by the studio during any stated period, but much more difficult to get at the cost of doing the business, and it is the latter which determines the net profit.

About Sittings In this inspection of the books, it is desirable to see how the sittings shown by the studio records have been obtained and whether they were really paid for, and whether the

prices prevailing have been steadily maintained. This will disclose whether free or invitation sittings swell the record of income, and whether the volume of business has been "boosted" by unprofitable special offers such as cut prices, etc.

Is the Business Growing? It is usual in the sale of a business to show the turn-over for at least two or three years, by which one may learn whether the business is growing or declining. If the latter, the cause should be sought. It may turn out that formidable opposition has interfered, or that the locality is changing in character. It should not be forgotten, however, that a declining business may have profitable possibilities, the decline being due, perhaps, to some lack in capital, business ability or personality of the present owner.

**Fixtures:
Apparatus** The actual value of the fixtures and apparatus may next be looked into. As a rule, photographers are apt to place this at too high a figure, looking only at original cost and forgetting depreciation by lapse of time or use. In some cases it may be desirable to get the price asked for (or stated as the value of) fixtures, furnishings and apparatus deducted from the sum asked for the business as a whole. This, if granted, will mean that the buyer of the business must refurnish and re-equip the establishment, which, more often than not, will be found advantageous from several viewpoints.

**Lease of
Premises** Another detail of importance is the lease of the premises, where these are rented, how long it has to run before expiration, whether it is renewable and what rental, and what conditions it contains as to repairs, etc. With this, of course, the physical conditions of the establishment should be seen to, whether the place will need expenditure for repairs, etc. One of the usual conditions in a lease is that the premises must be left in good and tenantable repair at its termination. It may happen at the expiration of a lease that it cannot be renewed, or, if it can, only at an increased rental. Still, the tenant has to leave the place in good repair, although he may not have been in occupation for more than a year or two, while the

dilapidations may have been going on from the time the lease was first granted. The new tenant may also have to reinstate portions that may have been removed when fitting up the place for photography, and this is sometimes a very costly matter.

A feature is frequently made in the sale of a business of the number of negatives in stock. The prospective purchaser will do well to see from the books what they have produced in orders for duplicates during the previous year or so, for it should be kept in mind that old negatives are not the same valuable asset that they were in the past, for at the present time people rather prefer to have fresh sittings in up-to-date styles than order from old negatives.

In many businesses, where transient **Old Negatives** patronage makes up a large part of the year's trade, negatives more than a year or two old are of little or no value. On the other hand, it may happen, because of the character of the clientele of the studio or some peculiar feature of the locality and the business, that the stock of negatives may hold profitable possibilities for business.

Where copyright subjects are included in this stock, it should not be overlooked that the copyrights must be transferred separately and individually from the original owner to the new purchaser. It is worth remembering, also, that a big stock of negatives badly numbered and registered is likely to prove a source of worry and trouble rather than of profit.

In the majority of cases, the sale of a **The Goodwill** small photographic business means the retirement or removal of the original owner and the conveyance to the purchaser of the premises, stock in trade and fixtures, together with the right to do business in place of the former owner. But when an old established business is in question, possessing a good reputation, a well-known name and a widespread connection in its locality, the value of the goodwill is an important detail of the sale and brings up some puzzling problems.

The goodwill of a business has been defined as giving the purchaser

(1) The right to carry on business at the same place as that at which it was formerly conducted.

(2) The right to use the old name under which the business was established, and to represent himself as the legitimate successor of the former proprietor.

(3) The exclusive or limited right to continue the business under that name, and to enjoy the benefits of the trade connection thus transferred without interference.

The third clause usually constitutes the chief difficulty. It should be properly safeguarded by a definite agreement, that the person selling the business will not compete, either directly as the owner of another studio, or indirectly as manager or employe of another studio, within certain limits of locality and time. This is essential because the value of the goodwill of a photographic business, like the value of a doctor's practice, is so largely dependent on the personality of the man himself.

The second clause covers the point of greatest importance, since it virtually secures to the new purchaser something of definite value. But no general rule can be given by which one may fix this value in an individual case. Ordinarily, one might venture the opinion that the goodwill of a business with the right to continue it under an established name as successor would be worth two years' net profits of the business. But in some cases this estimate will be too high and in others ridiculously low. To the amount asked for the goodwill, of course, must be added the value of the stock in trade, fixtures, negatives and so on at valuation.

Where the business to be purchased is of sufficient size and importance, the aid of an attorney should be sought, and the books of the concern should be examined by an accountant. This will add to the cost of the business, but is an expenditure well worth its cost, since it may disclose circumstances and conditions which will materially reduce the amount asked for the business, or even show that the proposed purchase is not advisable.

Sociability as a Help While some photographers can and do conduct their studios on what may be termed a "strictly business" basis, neither knowing nor caring to know anything about their custo-

mers, there can be no doubt but that sociability is a big help in building business, especially in the smaller cities. A wide acquaintance among the right sort of people is a valuable asset in any business, and the new-comer in a community will do well to cultivate such an acquaintance by every right means available. This does not mean that the photographer should join local clubs and societies simply for the business he can secure from fellow members. But it does mean that he should put himself in evidence in the social life of his town or class, and win for himself as wide a popularity as possible in his community.

Sociability of this sort may be cultivated in many different ways, depending upon the personality of the photographer. Men differ in their hobbies and relaxations. The thing is to know the men and women worth while in one's community, to be in evidence in public and semi-public affairs. Civic activities offer a profitable avenue for this kind of publicity, church, fraternal society and social work are other avenues to a local acquaintance which suggest themselves. Relaxation of this kind, which brings one out among intelligent and cultured men and women, broadens the mind and furnishes it with ideas, cultivates tact and patience, suggests new and fresh ideals and keeps the whole man in good trim, adding the human interest and the human touch to all his work and activities. As already mentioned, there can be no direct seeking for business in all this. The business will come naturally from the acquaintance, must, indeed, be incidental, the apparent purpose of sociability being relaxation and participation in the activities of the locality or organization.

Altogether apart from this and yet in **Studio Socials** a measure related, may be mentioned a much neglected method of securing an acquaintance among children and young people. This is the inauguration of series of receptions, musical afternoons and similar affairs which will draw the young people to the studio. This method is sometimes followed crudely and with little taste. It does not mean hiring a small orchestra once a week and throwing the establishment open to the public, with a profuse display

of specimens on every hand. What it does suggest is the arrangement of two or three tastefully appointed rooms for receptions or musical purposes, the securing of two or three or four local entertainers, such as pianists, violinists, young women who can give monologues or talks suitable for the pleasant entertainment of children, with a definite programme which will happily cover two hours. By sending out to a selected list of children or young people neatly printed invitations and a programme, and arranging for some one among one's women acquaintances to act as hostess for the occasion, such an affair may be utilized to bring a host of desirable customers to the studio. In this and similar ways the photographer can readily reach a wide acquaintance and create a favorable impression in his community.

There can be no question about the **Appearances** vital importance of "appearances" as a business factor in professional photography today. The latter's place as a semi-profession in the public mind, rather than a mere business or trading pursuit makes this self-evident. The photographer who seeks success, whether he be well-established in his community or new to the business, has no choice in the matter; the neglect of appearances is a handicap bound to prove fatal in the long run. This detail of appearances covers the whole business, from the impression given to the visitor by the approach to the studio exterior, and the style and manner of the photographer and his employes, to the impression given by the interior aspect of the studio and the delivery of finished work to the customer. Everywhere a proper regard for appearances is vital to success.

How to compass this detail of appearances is rarely an easy problem, depending as it does so largely on the amount of capital available. Cleanliness, neatness and order in every detail are the elementary essentials and everywhere practicable; but elegance and refinement in appointments, furnishings, decoration of rooms, in employes, in the studio stationery and similar details means expenditure, a certain amount of good taste and a lot of right thinking. The possibilities are of course, dependent on the photographer's means, personality,

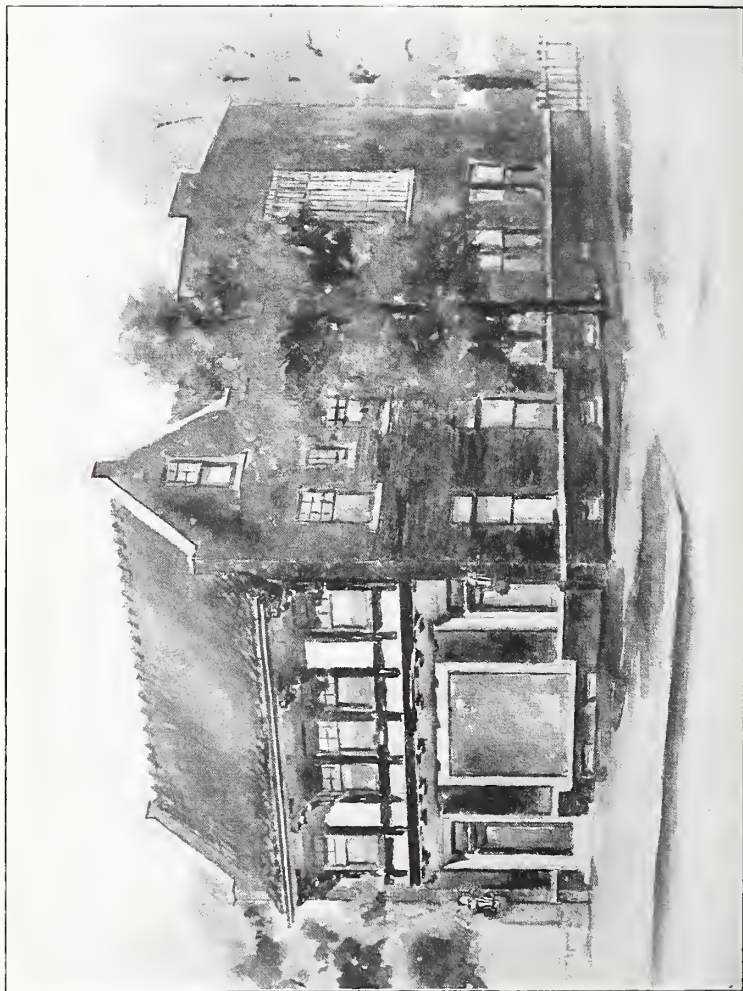
the location of the place of business and the character of the patronage desired.

**Individual
Buildings**

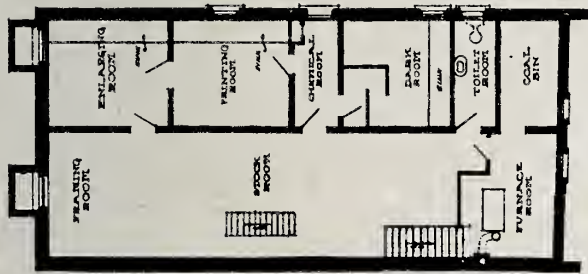
To begin at the beginning, the photographer should control, as far as is possible, the appearance of the exterior and interior of his place of business. In small towns, and even in some of the larger cities, the best plan is to secure an individual building, slightly away from the busiest center of trade, which can be designed or remodeled to suggest and lend itself to the work to which it is devoted. The new studio of Mr. D. D. Spellman, of Detroit, here illustrated, shown how this plan may be followed even in a large city. The South Kensington studios of Messrs. C. R. Fry and Son, London, illustrate the possibilities of the plan even in a bustling metropolis. Such a studio gives the best sort of an impression to the visiting customer, is profitable as an investment in publicity, and enhances the value of the work therein produced.

**In the
Business
Section**

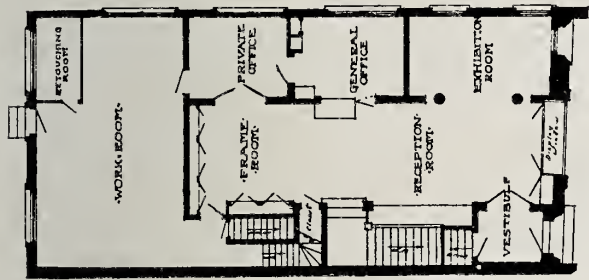
When it is essential to be located in the business section of a city, a proper regard for appearances means care in selecting the street and building, so that the approach to the studio and the businesses surrounding it may not detract from the general impression of tasteful refinement which the studio itself should invariably give to the visitor. Thus a street occupied by jewelers, florists, modistes, art stores, and the like, is preferable to one devoted to hardware and furniture, with cigars and a saloon or two to add variety. Similarly, before locating in a business building, it is well to consider carefully the character of the businesses carried on in the building. This will obviate unpleasant incongruities in surroundings, such as I once saw in a New York instance, where the photographer's rooms were sandwiched between a "wooden and cork leg emporium" and offices devoted to dentistry, typewriters and funeral caskets. Where, however, popular trade is desired, and quantity rather than quality is the motto of the business, surroundings and other esthetic considerations must give way to the prime necessity of a location where a great number of people pass day by day. As



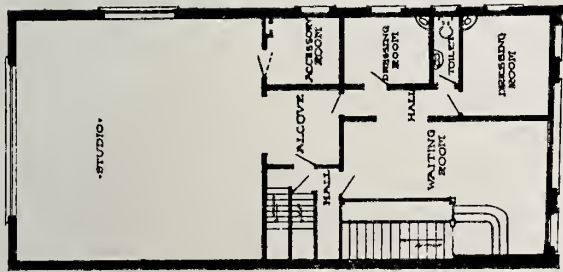
D. D. Spellman's New Studio



•BASEMENT PLAN•



•FIRST FLOOR PLAN•



•SECOND FLOOR PLAN•

•GEOM.FOTTLE ARCHITECT DETROIT MICH•

Plan of Spellman's New Studio

an example, I recall the instance of a man who built a very successful portrait business in a few years by securing a location between a big dry goods store and a popular ladies hair dressing establishment. Beyond securing ample space in a deep, narrow entrance for show case display, this photographer could do nothing in "appearances" until the customer had climbed two flights of hardwood stairs and entered the reception rooms of the studio.

A Show Window Except in the largest cities, the photographer can generally secure premises which include a store window available for the display of his work. As to this I cannot do better than quote now a series of papers by Mr. Drinkwater Butt, published in the British Journal of Photography a few years ago:

The photographer's first and most important means of introducing his work to the notice of new clients is, of course, his show-window, and we will, therefore proceed first to consider the design of such a window. It may be at once said that a very large amount of space is by no means necessary, or even desirable, for not only is a large sheet of plate-glass an unpleasing and costly thing, but it is also usually very destructive of anything like good architectural effect in any building in which it occurs. It is also very difficult to fill a very large window satisfactorily with photographic work. If the window is tall and high, anything placed in the upper part of it is not only thrown out of perspective, but is also out of the range of vision of the passer-by, unless by unpleasant straining of the eyes and neck; so that in case such a window exists and cannot be altered, it is generally better to partially drape it and use the upper portion for the admission of light to the shop beyond than to place any specimens in such a bad position for viewing.

A Small Window Preferable A very large window also demands an undue number of specimens to fill it, which makes it a special disadvantage to photographers in the smaller towns, where not only are sitters fewer, but where also a constant change of window dressing is more desirable than

in the larger centers of population. Among a large quantity of work there must also, of necessity, be a greater chance of things which do not harmonize coming together, to the destruction of artistic unity of effect; to say nothing of inferior work having to be sometimes used to make out, which will, of course, lower the average of the whole. A large collection of portraits is also apt to be a weariness to the casual spectator, who would give a much more appreciative attention to a smaller collection of the photographer's best work. In a small window, too, the much more artistic system of showing work in only one process at a time may be adhered to, when not only is each display more harmonious in itself, but each can also have its proper and most suitable background and setting in the way of draperies, etc., and thus more striking and attention-arresting changes be constantly made. A small quantity of the photographer's best work thus effectively and tastefully arranged will do him and his business a great deal more good than a large amount of inferior stuff going badly together, and some portion of it, at least, out of harmony with its surroundings.

Draperies in For these one-process displays, the
Display window might be filled one week, for instance, with sepia carbon, another with black platinotype, and another with matt silver prints, and so on; and for use with each might be made a set of window draperies harmonizing in tint with the work to which they are to form a background. This idea is often carried out by jewelers and drygoods houses. The photographer should not use brilliant colors, but the softer and more delicate colorings found in art fabrics, where tones, rather than colors predominate. I have said "should not" in the above sentence, because, as a matter of fact, I find that the photographer very often, when buying his window draperies and fabrics, forgets that they are not themselves the objects to be shown, but only the background and foil for his work, and so gets them much too strong and obtrusive in color and effect. Instead of this, how much better are delicate brown or creams to go with his carbons, ivory-white or soft grays for his platinotypes, and whatever broken tints that may

best harmonize with the color to which he tones his silver prints. The variety of materials which may be used for the lining of showcases, or for window draperies, is very large, including hollands, linens, canvases, plushes, velvets and silks; and while the color should harmonize with that of the work to which they form a setting and background, it may be also laid down that the texture chosen should be proportionate, as it were, to the size of the pictures to be shown; a coarse canvas being, for instance, most suitable for going with large works, while smaller and more delicate pictures should be seen against finer and softer stuffs. Enlargements generally look well against canvas, smaller carbons and platinotypes against hollands and linens, silver prints against silks, and miniatures and colored work against plushes and velvets. It may also be added that the materials chosen should generally be without pattern, or at most, only such a self-colored one as may be found on some damasks and brocades, as any assertiveness or conspicuousness of design will at once detract from the restfulness which is necessary to all backgrounds, and cause them to compete for the spectator's attention with the work that they should only unconsciously set off.

**Interior
Fixtures** The general interior fittings, other than draperies, should generally be of wood, the restlessness and disturbing glitter of brasswork, mirrors, tiles, and such-like things, being scrupulously avoided. Palms, pot plants and ferns are also undesirable additions to a photographer's window display. The design of window enclosures must, of course, be in harmony with both that of the shop front and that of the interior fittings of the shop itself, as they are seen in conjunction with both.

**Educative
Display** In these days, when the public is so well informed about photography and so ready to be interested in its processes, the idea of educative displays deserves more consideration than it has yet received. The educative display represents the method of indirect attack, which is so often more effective than the direct attack as represented by the stereotyped display of photographs "all of a kind." It also offers a profitable variation from the

everyday exhibit, and there is money in interesting the public.

Such a display may take any one of many different forms. According to the ingenuity of the photographer, the character of his trade, the season of the year, the location of the studio, etc. If it draws attention to the photographer's skill or facilities, or to some special feature or usefulness of photography, it serves its purpose and is good publicity. A few rough suggestions will suffice to indicate the lines along which such displays may be planned.

Hollinger's "Copy" Display One of the most profitable displays ever made by Hollinger, of Fifth Avenue, New York, was a case of platinum copies from old cartes-de-visite and daguerreotypes. The exhibit showed the original prints or daguerreotypes together with the copies, and the contrast was invariably favorable to the copy. This pleasing contrast was secured by (1) the excellence of the copy, (2) slight enlargement or variation in size or shape of copy as compared with the original, (3) a few touches of chalk or crayon, giving life and crispness to the shadows to the print or softening undesirable contrasts, and (4) modern styles in trimming and mounting applied with discriminating care. Apparently, the public was pleasantly surprised to learn that the old, faded but treasured family portraits could be reproduced with such obvious improvement, for the display formed the basis of a side-line which has brought thousands of dollars to the Hollinger studio.

For Woman An educative display for women, showing the influence of colors and design in costume upon the effectiveness of a portrait can be made as follows. The scheme is bound to attract attention. Arrange with a local modiste to send a model or two to the studio early in spring or fall, with half-a-dozen costumes. Make a few figure studies with this material, showing the costumes to the best possible advantage. Get the modiste to give a brief, technical description of each costume as to color, material, texture, etc. Affix this description in neat printed form to each figure study and arrange the dis-

play tastefully in the show-case. A similar display of the same order can be made by arranging many different-colored ribbons in a pleasing design in the show-case, with a photographic reproduction of the arrangement alongside, showing how the different colors photograph. This display should have a few paragraphs of explanation, telling of the advantages or disadvantages of this or that color combination in a portrait. Another variation is secured by photographing an attractive woman in costumes of different colors, with and without wraps, hat, furs, etc., showing how these items may help or detract from the general effect in a portrait.

The Reception Room In the smaller studios, a single room of large size is usually made to serve as the reception-room for the receiving of visitors and as a waiting-room between sittings. Where the business will justify it, however, a better plan is to have one or two smaller waiting-rooms leading off from the reception-room proper, where single customers or parties may be isolated from the stream of callers. When, as is generally the case, the reception-room is utilized as a gallery for the display of the work of the studio, these additional retiring rooms should be kept free from displays of work, and made to suggest quietness and restfulness by the tone and character of the furnishings and decoration. In taking up the furnishing of the reception-room proper, I again quote from Mr. Butt's papers. He first warns the reader against the intrusion of work, such as retouching, spotting, etc., in the reception-room, and the over-crowding of the room in the matter of displaying the work of the studio. He then goes on to say:

The furniture of the reception-room should be sufficient, but not excessive, in quantity, and in harmony with whatever style of decoration may be chosen for the whole. It need not consist of much more than a few comfortable seats and lounges for the use of clients, a small desk of good design for the receptionist, and a few small tables for the display of specimens in books, small frames, etc. Whatever is used, however, should be good of its kind, and, if simple, yet artistic in design.



Portrait
F. Milton Somers, Cincinnati, Ohio



C. F. Townsend, Des Moines, Iowa

**Lighting the
Room**

To proceed to the general requirements of a good reception-room, we may note that one essential is that it should be well lighted, both by day and by night, during the latter preferably by electricity. As suggested in the previous article, the upper parts of many tall shop windows, which are useless for the external display of specimens, may often be utilized for the partial daylight illumination of the reception-room beyond; and light be also generally obtained from the back, when, as is generally the case with town premises, none is available from the sides. Best of all is, of course, top light, when it can be got, and this is a point which should be kept in mind when premises are being chosen for photographic purposes. Another good arrangement, and one which may be made to give very artistic effects, is, when there are three or more windows on one side of the apartment, to divide the space between them, by partitions at right angles to the wall, into bays, by which means a considerable amount of hanging space, lighted alternately from the left and right, is obtained. In these bays all kinds of work can be very conveniently displayed, while specimens of each kind of process are kept together, and yet isolated from possibly discordant neighbors. The quantity and quality of the lighting should also be taken into consideration when the general decorative effect is being decided upon, it being always to be remembered that a room not too well lighted should be decorated in a lighter key than one which has a better natural illumination; in which latter both the woodwork and the wall coverings may be darker in tint and tone.

In the decoration of a reception-room

Decoration

of an important character, it is generally best to keep to one style or period throughout, the Adams version of Renaissance work being, for instance, often very suitable. In this style the ornament is sparing in quality, generally in low relief, and the whole quiet and refined in taste, besides being admirably designed for execution in wood and plaster, the two principal materials for indoor work. What, for want of a better name, is generally known as

the "art nouveau" style is also not at all unfitted for reception-room decoration, provided always (as the lawyers) say that its exuberances and extravagances be avoided, and its points of directness and simplicity seized upon.

Wall-Coverings

Among the most important decorative features of the reception-room are the wall-coverings which give the dominant note of color to the room and serve as the background against which the work of the studio will be displayed. For this purpose, where expense is to be considered, plain-toned papers offer the most suitable material. The color of the wall-covering will largely be determined by the illumination and light aspect of the room as far as light or dark, warm or cold tones are concerned. The general tone and character of the pictures used for display should also be considered. It is curious to observe how taste varies in this last detail. I have in mind three high-class studios where black-and-white platinotypes make up the display collection. The reception room of one of these studios is hung with claret-colored burlap; in the second studio a dull gold grass cloth is employed; while in the third instance the walls are covered with a rough-grained canvas cloth of warm gray; of these three the last mentioned seemed to convey the most pleasing impression. Patterned papers or cloths are not advised, the design asserting itself and destroying the quietness and tonal quality which should characterize all backgrounds. I recall a reception-room where warm-toned carbon prints and paintings made up an effective display. The walls of this room were colored in dull green and grayish blue distemper and served as an admirable foil for the display.

In floor coverings we have to consider
Floors first the class of trade coming to the studio before we can decide whether these shall be parquetry with eastern rugs, or good, inlaid linoleum, a richly carpeted floor, or a simple, stained wood floor with small mats. For the studio catering to high-class patronage the first mentioned is doubtless the most desirable method of treating the floor where the reception room has to accommodate con-

siderable traffic and is entered directly from the street, the second is preferable as durable, neat in effect and easily kept clean. An all-over carpet is, from several viewpoints, the most desirable floor covering for a reception room where the business is largely confined to the artisan class, providing an impression of homelikeness and comfort which is better appreciated than the more formal parquetry border surrounding the average multi-colored eastern rug. Speaking of linoleum-covered and plain stained floors, Mr. Butt says: A good linoleum-covered floor is easily kept clean and free from dirt, especially if when first laid, and at intervals afterward, it is well treated to a good coat of beeswax and turpentine as ordinarily used for polishing stained floors. The latter (i.e., stain) is also a good substitute for parquet when there is already a good well-laid floor to operate on, but the common procedure of staining and then varnishing or using one of the so-called varnish stains is not to be recommended, as the surface so obtained will soon chip, scratch, and look shabby, and never give so satisfactory an appearance as a stain made of common Brunswick black diluted with turpentine to the desired brown tint, followed by applications of the above-mentioned beeswax and turps, or the wax polish which may be obtained in paste form ready for use. This gives a clean, non-chipping, unscratchable and, in time, well-polished floor better than any other method with which I am acquainted, and I have used it times out of number with entirely satisfactory results.

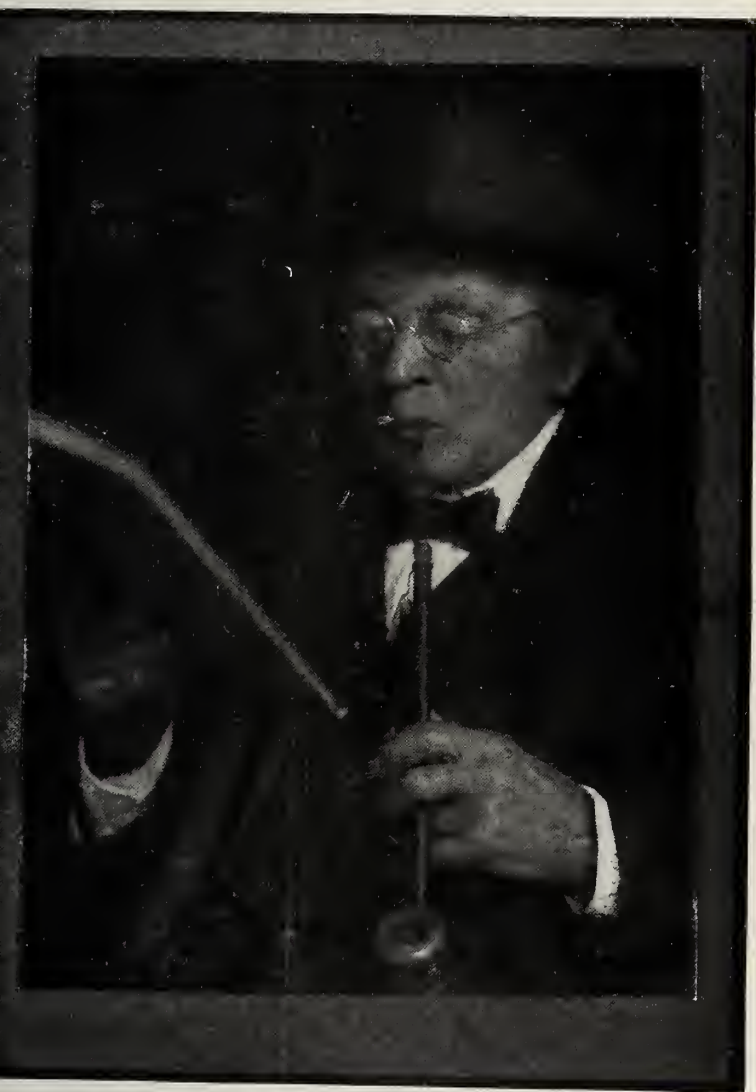
Here I draw again upon the papers of

The Studio Mr. Butt as offering well-considered advice and help. He says: In the furnishing and equipment of the studio, the first point to be insisted upon is the necessity of abolishing from the studio all kinds of working apparatus save that actually needed for the purposes of portrait-making, to which the room should be wholly and solely devoted. Printing, retouching, and similar work not only cause dirt and litter, and take up valuable space, but also introduce into the studio the presence of assistants, who distract the attention of the sitter, and often cause the nervousness and self-consciousness which are so inimical

to good photographic portraiture. The next thing is to see that the actual working apparatus of cameras, reflectors, blinds, backgrounds, etc., is in perfect order and ready for immediate use, so that no defects may interfere with the swift, smooth completion of his arrangements which characterizes the good operator.

As regards backgrounds, these are **Backgrounds** generally too many in number and too poor in quality, and so little conducive to good work, though taking up a lot of room. For even a very large business some ten backgrounds at a time should be amply sufficient—such, say, as a light and a dark landscape, a light and a dark interior, a couple of cloud effects, vertical and horizontal graduations, and flat light and dark tints. . . . When any background becomes at all shabby or hackneyed by constant use, it should be disposed of, and something fresh obtained in its place, so that the photographer's work may not become monotonous and stereotyped, as it often tends to do when the same backgrounds and accessories are used over and over again.

The most general and useful accessories are those which take the form of articles of furniture, and with regard to these it may be at once said that the objects to be most avoided are usually those made especially for photographic use, not only because they are to be found in so many studios and consequently lack distinction and individuality, but also because they are generally heavy, ugly, and quite unlike any furniture which clients would probably have in their own homes, and so feel (and look) most at home amongst. Chief among this class of article is the so-called "posing chair," which takes to pieces and fits together again in all sorts of weird and wonderful ways, something like that piece of furniture which, according to the poet, "contrived a double debt to pay, a bed by night, a chest of drawers by day." In none of its permutations, however, does this article look like any real piece of furniture, nor does it feel comfortable to the sitter, or, as far as I can see, facilitate the work of the operator in posing him. For vignettes a narrow-backed chair on a revolving stand is certainly



S. H. Lifshey, Brooklyn, N. Y.



Portrait
Kenneth Alexander, Millville, N. J.

a convenience, as on it a sitter can be easily turned a little as the exigencies of lighting or point of view require, but apart from this, none of the other "bags of tricks" so much affected by some not-very-clever photographers, who trust rather to mechanical contrivances than their own skill, are worth bothering with.

What is wanted in a studio is simply a good variety of the kind of furniture which a photographer's clients are likely to have in their own houses, amongst which they will look and feel most at home, and which can always be treated so as not to become obtrusive in the picture or detract from its artistic effect. Longfellow's dictum, "That is best which lieth nearest, shape from that thy work of art," applies here as in other cases.

Decorative Features To pass on to the fixed decorations of the studio, it may be laid down that the general scheme, in most cases, should be a light and airy one, not only that the apartment may, by its brightness and cheerfulness, have a good effect upon the spirits and consequently also upon the expressions of the sitters, but also that all the light possible may be obtained when wanted for large groups or other work requiring plenty of illumination. Superabundant light, whether direct or reflected, can be easily shut out or cut off by blinds or screens, while a naturally dark or gloomy interior cannot be lighted at will. Therefore, speaking generally, ivory or creamy white may be recommended for ceilings and woodwork, and warm soft grays for the walls, any colored decoration being sparing in quantity and worked out principally in dull pale yellows, buffs, and blues.

In a studio intended for high-class business, the usual floor of linoleum may be replaced by a parquet floor, or the effect of the latter can be obtained in an inlaid linoleum, which is also a capital material for the covering of studio floors, especially in busy establishments where there is much traffic. Large carpets are not generally satisfactory, as they are difficult to keep clean, uneven in wear, and, more often than not, unpleasantly obtrusive in pattern, to the great detriment of the full-length pictures or groups in which the floor is included.

Dressing-rooms

Convenient to the studio, at least two or three rooms, of good size and pleasingly decorated, should be provided for dressing purposes. These should have a full-length mirror, small table-mirrors, hat- and coat-stand, a small couch and a low-seated chair or two. In the rooms devoted to women patrons, hair-brushes, combs, in several varieties, pins and similar conveniences, should be provided and kept scrupulously clean and attractive in appearance. Daintiness and completeness for women's use are essential in such rooms. The gentlemen's room should have mirror, brush and combs, whisk-brooms or clothes-brushes and similar items. Running water, hot and cold, is a desirable convenience, if available, and will be appreciated by many customers. If space permit, a dressing-room exclusively for the use of children will often prove advantageous. It should, of course, be decorated and furnished appropriate to its use.

Workroom The workrooms of the photographic establishment demand as much consideration as the reception-rooms and studio.

They should be located away from the studio, but convenient of access. Roominess, abundance of light and completeness of working equipment are the essentials. The arrangement of all workrooms should be such as to permit of thorough cleaning at stated periods without the necessity of turning all the contents of the room topsy-turvy. Separate rooms should be provided for chemical manipulation, printing, retouching and finishing. A chemical storeroom is a useful convenience which is rarely found in the older studios, but should be provided for in any studio built today. Where special printing methods are largely employed, such as carbon- or platinum printing, a special room for the working of each method will repay its cost in added convenience and better work.

Advertising Among the business methods of the modern photographer advertising necessarily occupies an important place.

Once ready for business, the photographer's immediate and most urgent need is some method of attracting customers to the studio. And advertising is the surest

and most direct way of getting business in photography, as in every other walk in life. When customers begin to come, technical skill and personality—the steady production of good work and pleased customers—will make a business grow and prosper. Clever salesmanship and tact in the reception-room or office will bring good prices and increase the size of the day's orders. But for bringing a steadily increasing volume of business to the studio, and making people prefer one studio before another, advertising the studio and its work outside of the studio is a necessity.

To answer the photographer's question: How shall I advertise? would fill a very big book. I should have to know all sorts of things about the particular business in question before any definite plan or method could be evolved likely to help. There are a thousand ways of bringing a studio and its work to the favorable notice of a community, whether in a little town or in a busy metropolis. In the second monograph, already promised, I hope to offer a few suggestive methods which may help this man here or that man there. Here I am content to put the big basic fact down plainly: Advertising is the way to get new business. Advertise by the best method you can devise, keep on advertising, and change the method as often as possible—always being sure that the method used is suited to the class of trade desired.

Your work will advertise your skill—in the show window, display frames, and as distributed by your customers. Your place of business and everything within it—from the entrance to the printed label on the delivery package—will advertise your business methods and personality. But the fact that you are in business to make photographs, your styles and special facilities for this or that class of work, the reasons why people should come to your studio in preference to another, these things must be made known by advertising. It may be that letters to a selected list of possible customers will be the best method; or a trained and expert outdoor solicitor covering certain classes of patrons; or newspaper publicity; or the use of booklets; or the giving of free sittings by invitation, or a hundred other

schemes may be adaptable. In this an intelligent business man may be trusted to think for himself, having the fullest grasp of all the factors in his case. The point is—advertise, and advertise all the time, in every way and by every means which commends itself to your common sense and judgment.

To the average man, the keeping of a **Book-keeping** set of business books which will, at stated periods, give him an accurate and dependable account of the condition of his business, is as formidable an undertaking as the management of a railroad. But the thing should be, can be, and is done; at least I have known photographers who asserted that they kept such a set of books. Be this as it may, I have never seen a complete system of book-keeping for the studio explained and demonstrated in theory or practice, and confess my inability to present such a system here. The fact is that, from an accountant's viewpoint, the average photographer's business presents a complicated problem, the sifting, recording and distribution of the cost of production, materials and standing expenses over a multitude of small transactions being the chief difficulty.

In my own experience, after a year or two devoted to the old method of day-book, journal and ledger with confusion at the end, I hired an expert accountant at forty dollars per day to devise a simple but dependable system suited for my business. After a few days' questioning and investigation, such a system was laid before me and accepted. It demands an hour's time per day and absolute accuracy in the recording of every movement in the business. But it is so simple in its working that a ten-dollar-a-week clerk can handle it, and it gives the actual condition of the business at the end of each business day by the mere totalling of eight accounts arranged side by side on a single sheet of paper. Some such system, with the usual studio register, appointment book, stock book and negative register, would seem to cover all the needs of the photographer; but the expert who devised my system expressed his opinion that no single arrangement of the sort would be suitable to all studios or general in its application. Hence my advice to the

reader is: Call in a reliable accountant, explain your need, lay the business before him in all its details, make an inventory, and let him devise the simplest available method for your business. This may prove expensive, as it did in my own experience; but it will certainly prove itself a splendid investment, showing, as it will, the loss or gain, the leaks and weak spots, the relation between gross and net earnings, the points where expenses increase, the proportionate costs in material, production and selling, with a hundred other facts of vital interest and importance to the man who is in business for all it is worth.

In the event of the sale of the business being desirable for any reason, such a method of book-keeping is invaluable, showing the actual value of the business, its growth and possibilities.

About submitting proofs to customers
Proofs there are at least two questions. Should all or any of the proofs be retouched or finished? And: what method should be followed to ensure the return of all the proofs sent out? I have yet to find two photographers who agree in their answers to these questions. In a later monograph the subject will be dealt with more fully than my space permits here. But it may be said now that the solution of the first problem depends largely on the class of business done by the studio and the prices obtained, while the second problem can best be solved by the adoption of a reasonable rule and the use of all the tact you possess or can acquire in enforcing the rule or making exceptions.

Where the class of trade and prices obtained for work will permit, the simplest and best plan covering both questions is to send the customer retouched and completely finished proofs from all the desirable negatives yielded by a sitting. These proofs should be neatly numbered at the back and accompanied by a note stating plainly that "All proofs not returned will be charged for at a fixed price per print," and "Pictures approved can be ordered by number." This plan does three things: (1) It shows the results of the sitting to the best possible advantage and the sitter knows

exactly what he or she will get; (2) it makes a clear statement as to the return of proofs not approved or the charge made for them if retained; and (3) it puts into the sitter's hands at the earliest moment possible a finished print of each approved position or style, which is often desirable from the customer's viewpoint.

As far as is consistent with reason and good will, the photographer should willingly grant resittings on the request of the customer, without discussion, argument or hesitation. Of course, it is presumed that the customer will always give a reason for such a request. Where the reason shows that the fault in the previous sitting is clearly with the sitter, it will often be possible, with tact, to make a special charge to cover the extra sitting, but even this should be waived in many cases. There will always be unreasonable customers and people difficult to satisfy or please, but these are generally in the minority and their good will will often be worth some concession. Moreover, given a resitting and a pleased customer, a clever receptionist can usually handle the resulting order in such a way as to compensate for the extra trouble and cost involved.

In handling proofs and resittings, it is wise to have a fixed rule that where more than a specified number of negatives are ordered from on a given order, or where the total amount of the order falls below a stated sum, a charge of \$1 or \$2 will be made for each extra negative from which prints are ordered. This, of course, applies only where photographs are sold in dozens. Where individual prints are offered at so much per print, the cost of the negative is included in the higher price usually asked for "first prints."

The question of securing payment from customers is one of the big problems in most photographic studios. It is a question which does not permit of a general answer, its satisfactory adjustment depending almost wholly on local conditions, but there is unanimity in the opinion that prepayment, in part or wholly, should be secured whenever possible.

In a high-class business work is done without any question of payment, the known social or financial standing of the customer being a sufficient guarantee of payment. Similarly, in any business where the photographer knows his customers this method is largely followed. Under these conditions a bill is sent when the photographs ordered are delivered, monthly statements of account being sent regularly until the amount due is collected in the usual way. In all such businesses the collection of accounts is usually slow, but fairly sure. There are, of course, bad debts, and invariably a lot of preliminary work is done which never comes to the order stage, and so is not paid for by the customer for whom the work was done. But these items of loss are considered inevitable to a business of this kind, and are calculated for in fixing prices.

Hollinger's Method In other studios appealing to high-class trade so large a part of the work is speculative that a definite scheme of prepayment or deposit on sittings is out of the question. The method in vogue at the Hollinger studio, New York, may serve as an example. Here work is done at the desire of the customer, finished prints from selected negatives being sent out a day or two after the sitting. The customer is left free to retain any or all of these prints at a fixed price per print, if approved, duplicate prints being supplied at a lower rate than "first prints." If not approved, any or all of the prints may be returned and a resitting arranged for. The basis of the system is that the customer sits for a portrait in good faith and pays only for such prints as he or she may approve or decide to keep as the result of the sitting, payment being made only after approval. At first sight such a system would seem to involve certain loss, but Hollinger's success proves its reliability as he applies it in his circumstances. Obviously, although the approval of the sitter seems to be the pivot of the system, much personal work is done to win the good will of the customer and so ensure a volume of business sufficient to make the majority of sittings profitable. A curious feature of the working out of this method is

that customers often come to purchase the prints they aforesaid rejected, so that the total of returned, unapproved prints sent back by customers barely suffices to provide the number of prints required for display and show-case use during the year. The method is peculiarly individualistic, and depends for its success very largely on the relations established at the time of sitting between the photographer and the customer; but with certain classes of customers, properly handled, it has shown itself to be a very desirable way of doing business.

For the Average Studio As far as the average studio is concerned, some method of securing part payment for orders at the time of sitting, or when the order is given (the payment being completed on the delivery of the order), is altogether desirable, if not essential.

The Receptionist's Part The particular plan adopted must be determined by the class of patronage coming to the studio, by the experience of the photographer and similar local conditions. And no single plan can be universal in its application to all customers. There must always be exceptions. Whatever method is adopted or rules provided, their success depends very largely on the tact and skill of the receptionist or assistant who meets the customers and handles their orders. Some customers will voluntarily offer a deposit or part prepayment of orders; others skilfully avoid mention of the subject and have to be asked for a deposit, while others again protest against the idea of prepayment on one claim or another, and have to be handled with much tact to avoid offense. It is here that the value of the receptionist appears. Some receptionists can secure the required deposit without any trouble, apparently regardless of the personality of the customer. Such assistants are worth their weight in gold in a busy studio. Others have to be supported by cast-iron rules and succeed indifferently. Wherever prepayment of all orders is an absolute rule of the studio, the photographer should seek and pay for an assistant clever at the work, otherwise the reputation and character of the business will suffer considerably from an indifferent handling of this most sensitive detail.

Looking over a discussion of this question by eight or nine professional photographers of standing, I find that their methods are invariably individual. One suggests a deposit calculated to cover half the amount of the order. If the customer questions the idea of a deposit, he or she is informed that "it is not obligatory, but the usual custom. The payment can be made when the proofs are returned, etc." This dodges the difficulty, sets a time upon which payment will be required and emphasizes the fact that proofs are to be returned. Another photographer adopts the absolute rule: "A deposit required at time of sitting. No orders delivered until paid for," and insisted on compliance with this rule until he offended a local millionaire. A third varied his method according to the characteristics of his customers, getting a deposit in most instances; while a fourth knew most of his sitters and left the details of deposit or prepayment entirely to their desires. All of these men are successful, and no one of them complained of serious losses from the following of this method except the second—which was due to an obvious lack of tact.

The Studio Card A self-evident help is the use of a small card, giving the studio's prices and definite information as to appointments, the terms of payment, deposits and the like. This informs the customer on all points likely to arouse discussion or requiring explanation, and will predispose the sitter to ready compliance with the special method in vogue at the studio. Such a studio card affords data for the conference between prospective customers and the receptionist and has the advantage of "black and white" over the spoken and half-remembered word.

Old Negatives: The photographer who does not fully work his old negatives for securing
Duplicate Business what is known as "duplicate business" fails to grasp a big opportunity, and yet the neglect of this side-line is general. I have been photographed by a dozen well-known photographers in my time, and have yet to receive the first suggestion from any one of them that they retain the negatives and can supply duplicates in modern styles, etc.

Doubtless a certain amount of "duplicate business" will come to the photographer without solicitation or special effort. People quickly dispose of their photographs after they are once delivered by the photographer, and can generally use more than the amount first ordered. Why not have a simple card-index system of customers which will bring their last order to your eye say six or nine months after the sitting, and then send them a persuasively worded letter advising that you have the negatives and can supply duplicate prints in this or that special (new) style or finish at such and such a price per print or dozen?

**A Successful
Plan**

A successful New York photographer, who asks \$3.50 apiece for his duplicate prints, has found his "duplicate business" almost as profitable as his "new business." But he works in a systematic and intelligent way. During the early weeks of autumn, before the Christmas trade comes on, prints are made from a few hundred selected negatives of customers made during the current year. These prints are carefully finished in the prevailing style and sent out to the individual customers or sitters a month or so before Christmas. Each print is accompanied by a letter to the effect that the print is submitted as a suggestion likely to be useful in the search for pleasing holiday gifts for friends. If retained by the customer, the price \$3.50 is to be mailed to the studio at the customer's convenience. If desired, additional prints may be furnished at the same price. If the suggestion is not approved, the print may be returned to the photographer at the customer's convenience. This method involves a certain amount of expense. It is a speculative method. It means a little right thinking and the use of all the personal knowledge of his customers the photographer possesses. But it has proved immensely successful in practical application. There is no obligation anywhere; no obvious pushing for an order. The receipt of the print usually gives the customer a pleasant surprise. It comes as a welcome suggestion, and is carefully timed to reach the customer just when he or she is probably puzzling over the vexed question of holiday gifts. Few of the prints so sent

out are returned. Orders for additional prints are the rule.

**All the Year
Round
Advantages**

Apart from this special plan, the working of this "duplicate business" provides profitable employment to the studio during its dull business days. The lists of customers are classified and put to constant use. The preparation and sending out of letters, and the getting up of new styles in prints and mounts to render the pictures more attractive, means time and business thinking. The effort brightens the wits of the receptionist, or office assistant, and brings in a constant stream of business and new sittings which might not otherwise have been obtained. Where practicable, a specimen print from one of the customer's negatives should accompany such letters—for which, of course, on charge is made. This print will often decide the business.

Since the use of photographs for the illustrations of newspapers, periodicals, books and printed matter is now general, the modern photographer should be thoroughly informed as to his property rights in the work he produces.

As far as work done to order is concerned, i.e., photographs made at the request of and paid for by customers in the usual course of business, it is clearly established that the photographer has no property rights except the ownership of the negatives, without any right to display, sell or use prints from them unless permission for such use is given by the person for whom the work was done.

In the case of work done by the photographer at his own expense, for his own use and advantage, some payment or consideration being given to the subject: e.g., invitation portraits of professional or notable people, figure, view or genre work, the property rights (i.e., the sole and exclusive right to use or sell) belong to the photographer, and often make up a very valuable asset of his business.

**Copyright
Law**

These property rights are protected by the United States Copyright Law upon the fulfillment of certain conditions, and penalties are provided to cover the unauthor-

ized use or sale of photographs protected by copyright. Every photographer should be familiar with this law, its requirements and advantages. To obtain this information, write to the Register of Copyrights, Washington, D. C., asking for a copy of the Copyright Law, the circular of instructions telling how to copyright photographs, a few application forms, etc. The securing of a copyright is a very simple matter.

**Copyright
League**

Since, however, it is unwise to stand alone where the infringement of one's rights may involve considerable expense and loss, the wise photographer will apply for membership in the Photographers Copyright League of America (Joseph Byron, Marbridge Building, New York) and so gain the definite advantages promised in the familiar phrase *e pluribus unum!* This association, which asks a minimum yearly contribution of one dollar, is voluntarily served, and exists simply to aid its members in protecting their copyrights. Its strength and influence in promoting the interests of copyright depend most largely on numbers (membership), and every photographer should be enrolled in its membership.

Insurance

This is an item of vital importance, but one notoriously neglected by photographers. The advantages of protection and compensation in case of loss by fire or other risks are so obvious that no argument is necessary. The carrying of adequate insurance to cover negatives, fixtures, stock in trade, and the building, if this is the property of the photographer, is a necessary expense and a good investment.

Photographers, when they effect an insurance on their property, are frequently very negligent in the matter. In many cases the insurance is effected through a local agent, who takes down rough particulars and receives the first premium: the policy is forwarded from the head office. In due course this arrives, and the insured simply reads that the amounts of the different things are rightly specified and then rests content. He very frequently fails to read a dozen or more conditions upon which the policy is issued, the infringement of any one of which is sufficient to invalidate it, and no claim in

the case of fire can then be legally sustained. Furthermore, when a policy is once invalidated, it is always void, even if premiums upon it have subsequently been paid. In most policies there is a limited value placed on different items insured, as in the case of negatives, or, for example, lenses, that no one exceeds a specified value. The same with pictures and the like. If lenses or other items of high value are to be insured, the insured should see that the fixed limit includes their value.

Here our survey of photography as a business must be drawn to its end. The various methods of getting and handling business, advertising special lines, reception-room management, and like details, need ampler treatment than I could provide for here. We will return to them in a later number, which will be wholly devoted to the business end of the studio.

BOOKS

With Other Photographers. By W. Ryland Phillips. A concise description of the working methods of leading American professionals, with illustrations showing the making of portraits by reproductions of first and finished prints, the sitter under the skylight, etc. 1910. 72 pages, about 100 illustrations. \$2.50.

Professional Photography. By C. H. Hewitt. The methods and suggestions of an English professional. In two parts, about 110 pages each, illustrated. 1904. Complete \$1.

Notes and Comment

Novo Tanks are plate development tanks of novel design, intended for horizontal instead of vertical development. They are the invention of Gustav Dietz, to whom we owe the Multi-Speed Shutter. The advantages peculiar to horizontal development have recently been exploited by German investigators, who claim that this method gives more harmonious gradations in the negative without harsh contrasts, due to the checking of the action of the developer on the highlights, while the action proceeds unchecked in the half tones and shadows. The Novo Tank makes this method of undisturbed horizontal development an easy and certain matter. The tank is made in several sizes for amateur and professional use, each tank taking six plates at one time. Provision is made for the inspection of the plates during development and the removal of any plate without disturbing the others when this is desirable. See the booklet, free on request, from the Multi-Speed Shutter Co., 161 West 24th St., New York.



Cooke Extension Lenses. If you possess a Cooke anastigmat (Series II, III, IV or V) and your camera will permit the use of the greater extension involved, you can add materially to your pictorial capacities and pleasures by investing in the Cooke Extension Lens suited to the Cooke lens in use. This extension lens is used in place of the back lens of the normal Cooke, increasing the focal length of the objective and giving (from the same distance) an image about fifty per cent larger than the image given by the normal Cooke lens. What this increase in size of image means may be seen in the two illustrations given on page 14 of the new Cooke Lens Catalogue, obtainable on request from the Taylor-Hobson Co., 1135 Broadway, New York.

Quite apart from this special feature, however, the catalogue is one which you should see for its general information about anastigmats. It has the great merit of simplicity and directness.



Optimo is the name of a clever little exposure shutter which has given me great satisfaction this summer in photographing surf and similar subjects with rapid, complex movement. Its five leaves revolve in making the exposure, giving a star-shaped aperture which ensures the full illumination of the plate or film right to the edges. This means maximum light passing efficiency. Apart from this feature and the speed capacity of the Optimo (up to 1-300 second), I like its compactness, simplicity of operation and accuracy of marked speeds. It is made by the Wollensak Optical Company, Rochester, and can be fitted to any desired lens.



Ingento Acid Hypo has a distinct advantage over some other preparations of its class in that the acid compound is combined with the hypo-soda, so that one is not obliged to measure out separate portions of hypo and acid powders. It comes in air-tight, moisture-proof packages, the 25-cent package making 64 ounces of fixing solution for plates, films and papers. Burke & James, Chicago.



Carl Zeiss Protar, Series IV, demonstrates that sometimes the manufacturers give the consumer the benefit of reduced cost of production. By the use of new kinds of glass it was found possible to produce an objective in every way equal in efficiency to the well-known Zeiss Series VIIA Protar but at a lower cost of production because of simpler construction. This resulted in the introduction of Protar IV $f/6.3$ (convertible $f/7$). Those who seek a convertible anastigmat of the highest type at a moderate price should send for the Protar IV leaflet to the importer: E. B. Meyrowitz, 104 East 23rd Street, New York.

Commercial Brevities

Describing, from personal knowledge or experience, specialties which deserve to be more widely known.

The Cooke-Telar, just introduced by The Taylor-Hobson Company, St. James Building, New York, is practically a telephoto lens of moderate power, especially adapted for use with the average hand-camera with its characteristically limited bellows extension. Technically described, it is a compact, high-speed anastigmat of long focus, requiring only a short bellows extension, but giving large images of distant objects. This means telephoto work without the usual drawbacks of a special attachment or unusual camera extension.

The Cooke-Telar is complete in itself and works at F 7, nearly three times faster than the single element of the average anastigmat. It does not demand more than the usual bellows extension required by an ordinary lens, but it gives an image approximately twice as large. The new lens can be fitted to almost all between-lens shutters, but for photographing moving subjects a focal plane shutter is advised. Such a lens obviously increases the value of the hand-camera as permitting the photographing of many subjects unavailable at short range, such as birds, animals, aëroplanes, athletic events, etc.



The Primus Photo Title Printing Outfit, obtainable from Sweeley's Photo Supply House, Renova, Pa., is a handy convenience for the professional or amateur desiring to put titles or numbers on negatives so that they will appear on all prints from such negatives. The outfit consists of a full assortment of neat rubber type faces with wooden holder for stamping, tweezers for handling the types and a supply of ink. Such an equipment should be at hand wherever photographs are made, and the "Primus" seems to meet every practical requirement.





An example of relief lighting, by C. C. Kough.
See reference to Fig. 14 on page 180.

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Lighting in Portraiture

The essential element in all portraiture is likeness—the true or pleasing characterization of the subject. Lacking likeness, the portrait fails to fulfil its purpose, loses its chief interest, and is unworthy of the name. I put this at the forefront of our adventure in these pages, because it is all too often forgotten in the professional portraiture of today. The clever style or mannerisms of a noted photographer, pictorial qualities, and striking arrangements in pose and lighting are all very well in their way, but likeness is more important; gives satisfaction to the customer, and so is more profitable to the photographer. When we see a portrait of any well-known man, our first question is: Is it like him? Similarly, the final judgment of the portrait of a friend is either: It is a good likeness of him, or, it is not like him. In this characterization or portrayal of personality by photography, we employ two principal means—the composition or arrangement of the figure, commonly spoken of as “posing,” and the disposition of light and shade so as to give harmonious expression to what face and pose tell us of the sitter, comprehensively covered by the term “lighting.” Both these two means exercise a powerful influence on the result, but, since lighting is so intimately related to expression, it is at once the more subtle and the more important of the two. The pose may reveal likeness and accentuate character, or it may add to our pleasure in the portrait as a work of art. But, as most of us know by experience, the scheme of

lighting employed in a portrait may, with equal facility, distort, obliterate or destroy, or enhance and idealize the vital characteristics of the subject.

**A Familiar
Instance**

As proof of this we can recall a familiar instance. Among several portraits of a friend, all equally satisfactory in general treatment, there is usually one which we prefer before the others. If we look into the reasons for this preference, we will generally find that there is an indefinable something in the scheme of light and shade running through the portrait preferred which emphasizes the most desirable qualities of the personality portrayed. So much is this the case that, if the reader will take the trouble to make ten portrait studies of a friend, varying the illumination before each exposure, he will be convinced, once for all, that the securing of a pleasing likeness is most largely dependent upon the illumination, or lighting.

In this monograph we propose to study certain conventionalized methods of portrait lighting which are generally followed in professional studios. This limitation of the field will, in all likelihood, prompt the reader, as it prompts the writer, to ask two pertinent questions, viz: Why should lighting in portraiture be reduced to the formalism of method and convention? and: What about unconventional methods? The brief consideration of these two questions may profitably form a practical introduction to the larger part of our subject.

**Accidental
Lightings**

It is obvious that the lighting of the faces and figures we see about us in everyday life is infinitely varied. But it is equally obvious that these haphazard or accidental lightings rarely give us the most pleasing view of the individual. We will quickly appreciate this if we note the continually changing expressions of those about us (as, for example, the person occupying the opposite seat in a street or railroad car)—the result of the momentarily varied illumination of the face. In the portrait, we must get our impression of the individual from the single expression held during the brief period of exposure. Hence the necessity of studying the subject under

different lightings, in order to determine that aspect and illumination which will give us the most pleasing characterization of the sitter. Now, in professional portraiture as it is followed in the average studio, there is little time or opportunity for this particular study of the individual sitter. Moreover, experience tells us that it is possible to lay down certain general principles covering the illumination of the subject, so that, under given conditions, a definite method or style of treatment may be followed, successfully, in dealing with faces of differing but allied types. These principles concern chiefly the direction and quantity of the light falling on the subject. It is from the practical application of these principles day by day in the studio, and the use of conveniences for regulating and controlling illumination, i. e., the form of the skylight, screens or reflectors, etc., that photographers have evolved methods of lighting their sitters which are generally referred to as conventional portrait lightings. In the practical work of the professional studio, these methods offer the safest and simplest way to successful portraiture, and may be studied with direct profit by all who seek success in this field. Their principle disadvantage lies in the facilities they offer for monotony—the unthinking repetition of the same lightings day after day, such as we see in the show frames of many professional studios. Properly understood, they afford the best possible foundation for the evolving of individual or unconventional lightings which we can now consider.

Individual Lightings The term “unconventional” is usually applied to those lightings which attract attention by their striking originality and radical departure from the standard types of professional portrait lighting. A broader viewpoint would make it cover all lightings in which individuality of treatment or effect predominates over the slavish following of any typical method or style. We have examples of these individual lightings in the work of such men as Steichen, Coburn, Furley Lewis, Hoppé and Dührkoop. Their portraiture is always worthy of study. As far as lighting is concerned, there is no attempt to follow any recognizable method, but one rarely sees in their work a

scheme of illumination which is inconsistent with the pleasing portrayal of the subject. These original or individual lightings, however, are not advised for the everyday work of the average professional studio. They are apt to result in portraits which the average sitter fails to appreciate, simply because they differ from the typical studio portraits with which he is familiar.

The Studio

In taking up the conventionalized methods of lighting, we must first consider the studio, its arrangements and equipment for the work proposed. The actual form of the skylight, whether of the double or single slant light kind, is of little importance. The vitally important thing is to have plenty of uninterrupted sky light, and a system of blinds or shades giving one complete and perfect control over the illumination of the room. This, of course, covers daylight work. For artificial light portraiture the same general principles apply, viz: plenty of light and some means of regulating and controlling it; but here there will be needed special helps in the way of screens and reflectors, the detail of diffusion and shadow illumination being of prime importance in artificial-light portraiture. Here we are concerned with daylight lightings exclusively.

Blinds or Shades

For controlling the illumination in a daylight studio, several different methods of fitting blinds or shades are in general use. First we have the draped shades of flexible material, hanging on wires strung across the sky- and side-lights. Then we have roller blinds of stiff fabrics, working like the shades of a house window, on a spring-actuated tension. These are sometimes arranged to run from top to bottom of the side and top lights; at other times they run from side to side of the lights. My experience with all forms has convinced me that the first mentioned is the simplest and most satisfactory in use, and gives me results limited only by my capacity in securing the effect desired.

The Writer's System

As will be seen in Fig. 1, my blinds consist of two sets of flexible curtains: black next to the light and a white set underneath. These blinds are suspended on parallel

wires running the whole length of the studio, and are adjustable to any desired position, allowing every bit of light to be excluded or enter unobstructed at will.

They are operated by means of a light bamboo pole, so that I can stand by the camera and watch the effect of letting in here or stopping out there any volume of light desired. It is important in fitting any arrangement of blinds that each blind should overlap its fellow, so that no light enters between any two blinds. It is hardly necessary to say that any other system which is efficient in the detail of control will enable the reader to obtain any of the lightings described

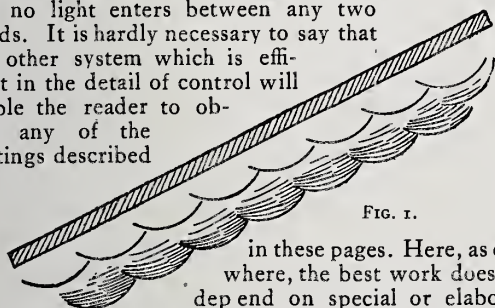


FIG. 1.

in these pages. Here, as elsewhere, the best work does not depend on special or elaborate fittings, but on the ability of the worker and his knowledge of ways and means. There can be no question, however, but that a light of the double-slant variety, with abundant skylight area, and well equipped with blinds, as I have already outlined, makes the obtaining of a wide variety of lightings extremely simple in practice. Once equipped with such a light, the photographer should devote a few hours at least to purely experimental work, learning how to regulate and control the light at his command, so that, in actual practice, he can proceed to get the effects desired without unnecessary fussing and disturbance.

Before passing to the discussion of the different lightings, I cannot forbear the suggestion that, when not actually in use, the blinds should be kept closed and the studio darkened as far as is practicable. There is common sense behind this suggestion, despite the fact that one seldom sees it applied in the professional studio. In general practice, the sitter enters a studio flooded with strong light, and this in itself often has a very unpleasant

effect on the subject. But the evil influence of the all-light studio on the photographer is more important. It involves the finding of the most desirable lighting of the subject by the comparatively difficult process of elimination, whereas lighting in portraiture should be constructive. The human face is almost infinitely varied by subtle and delicate projections and recesses, curves and lines, and does not offer a square inch of absolutely flat area. In these minute and delicately modeled differences of form we find the character and expression of the individual, upon the preservation of which the success of the portrait depends. So the portraitist must train himself in the observation, not so much of the larger masses of light and shadow which fall on the sitter, but of the finer and more subtle gradations of tone and light and shade which come between the high lights and the deeper shadows. In this study of the face, the darkened studio is immensely helpful, in that it enables the photographer to approach the problem of illuminating his sitter with an open mind and unbiased opinion. Apart from this, the darkened studio presents a quieter and more restful appearance to the sitter; and the freedom from persistent, glaring light means the better preservation of furnishings and such colored fabrics as may be in use as draperies or accessories. Since I adopted this system, I have found it directly beneficial to my work, much less fatiguing to the eyes than under the old conditions, and distinctly pleasing in its effect on my sitters. In the descriptions of methods of lighting here given, it is understood that, at the beginning of each sitting, all the blinds are drawn closed.

All schemes of lighting depend upon the position of the sitter with relation to the position of the camera and of the open area of sky- or side-light employed. Thus it is possible, provided the studio be large enough, to so change the relative positions of camera and sitter that what was at first one particular scheme will be changed to another quite different.

Plain or 45° Lighting The scheme of lighting which is found most generally useful for the average subject is known as plain or 45° lighting, because the light is so controlled as to fall upon the



Fig. 2. Showing the typical arrangement of studio, blinds, sitter and camera for plain or 45° lighting. See page 160.



Fig. 3. Example of plain or 45° lighting.
H. Essenhigh Corke. See page 164.

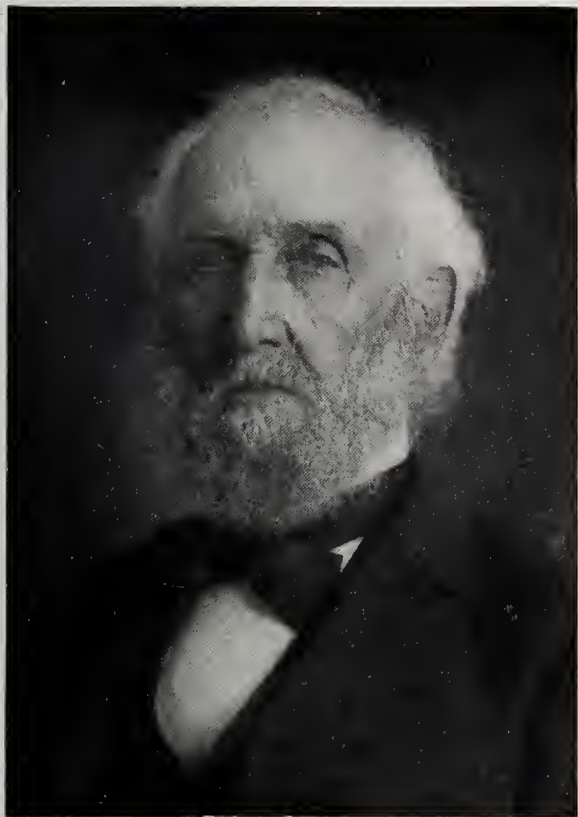


Fig. 4. Example of plain or 45° lighting.
W. M. Hollinger. See page 164.

sitter at an angle of about 45° . The relative positions of sitter, camera and light opening in obtaining this lighting are shown in Fig. 2, and examples of the lighting itself are given in Figs. 3 and 4, the first of these being lighted from the left hand (as in Fig. 2), and the latter from the right-hand side. The examples serve to show the adaptability of this lighting for widely different subjects. It readily lends itself to the obtaining of softness and breadth in the modeling of the features, and gives a sense of quiet dignity, which is a desirable quality in portraiture of this sort.

In making this lighting, the sitter should be placed near the center of the width of the studio and three-quarters of its length, starting from the wall behind the camera. Reference to Fig. 2 will make this clear. The blinds

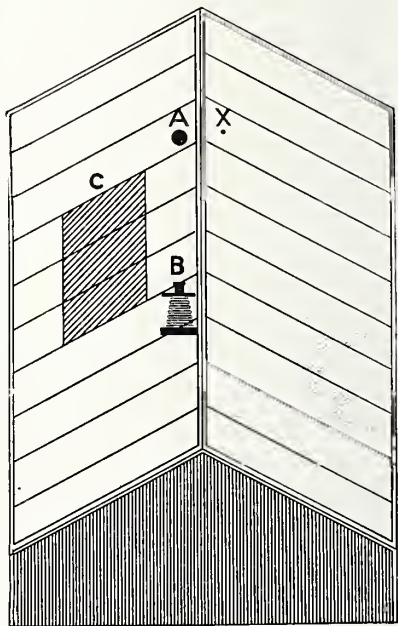


FIG. 5

should be opened to give a clear light area of about six to eight feet square, according to the height of the skylight. The higher the skylight, the larger will be the light area needed to obtain the effect, with soft but well-defined modeling and shadows with life in them. The position of the light area in relation to the sitter should be such that the top corner near to the sitter is

practically vertical over the subject, but a little to the front and right (or left in the case of a right-hand light) side, as shown in Fig. 5. In this diagram, A represents the sitter, B the camera, and C the light area.

These instructions will suffice to give us the main direction of the lighting, but they are, of course, subject to slight modification according to differences in individual studios, or the requirements of different subjects. For instance: in a studio with a low skylight, equipped with a single set of black or opaque blinds, this arrangement will probably give a hard lighting. To remedy this, the sitter may be placed nearer to the center of the width of the studio, marked X in Fig. 5, and so gain the advantage of the greater diffusion of the light at that point. This will insure softness in the modeling of the features, and a better rendering of the delicate half-tones which lie within the broad masses of light and shadow.

On the other hand, if only a single set of white blinds be used, the arrangement suggested may result in overmuch softness or flatness of illumination, lacking in snap and relief. In such an event, place the sitter nearer to the sidelight and enlarge the skylight area until the lighting is seen to be more forceful. It is just these final, delicate adjustments of the light which are so difficult to formulate on paper, and which must be determined according to local conditions and requirements, the changes being based upon that systematic observation of light-and-shade effects which should be second nature with the portraitist. As a rough guide, it may be noted that, in a full-face portrait with 45° lighting, the shadow cast by the tip of the nose should fall so that it extends to about the top of the far corner of the mouth of the sitter.

So far I have made no reference to the position of the head in this method of lighting. It is obvious that the light effects will be varied by each movement of the head to or from the light. In the scheme suggested, the subject is supposed to be looking directly at the camera and away from the light.

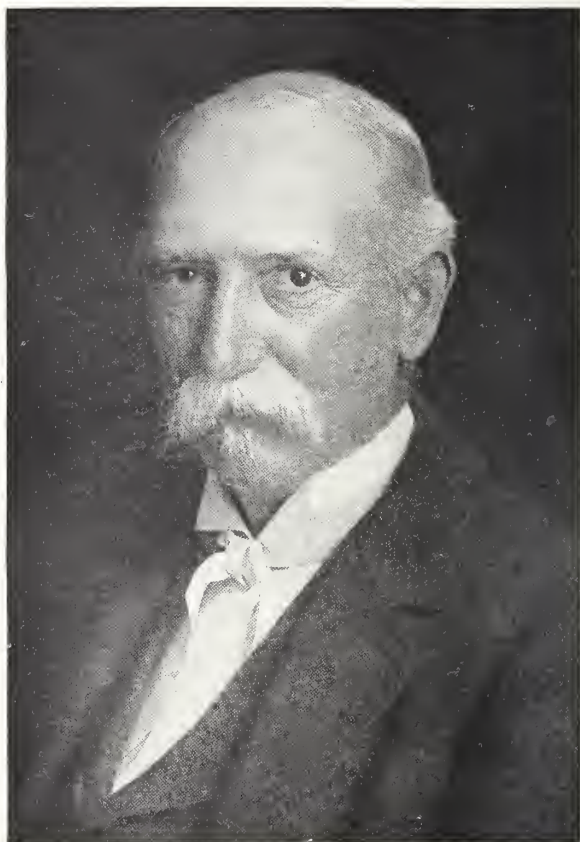


Fig. 6. Example of plain lighting, giving a "snappy" three-quarter-face portrait.

C. C. Kough. See page 167.

Three-Quarter Face Portrait- For a snappy, three-quarter face portrait by this lighting, such as we have in Fig. 6, turn the face of the sitter away from the light until the ear on the shadow side is just out of sight, and direct the eyes until they face the camera. The highest light will now be on the right or left side of the forehead (according to the direction of the light), the next strongest on the cheek bone and nose, and the next on the right or left upper lip, falling gently to the chin. On the shadow side of the face the delicate half-tones will grade back until lost in shadow. If the lighting is correctly managed, the catch-lights in the eyes will be properly placed as in our example, and will give animation to the face.

Various Types of Subject In using this lighting for portraits of old people, a small portion of the top of the side-light slightly in front of the sitter can be used to advantage, giving a degree of roundness which is desirable where the features are flattened by age, or where the hollows under the eyes are at all prominent. When the nose is a distinctive feature, care should be taken to keep the shadow side of the face well illuminated, so that the line of light along the nose does not render it obtrusive.

For children, the top light alone will usually give the most desirable lighting. For groups, the top and side light combined will generally be needed to avoid heaviness in the shadows and abruptness in the modeling.

Shadow Illumination When it is found, in the use of 45° lighting, that the shadow side of the face invariably shows heavy and dark, do not fall back on a light reflector for relief until you have thoroughly tested the influence of the color of the studio walls upon this detail. My experience has taught me that the most favorable illumination of face shadows is ensured by having the walls colored in a medium light neutral tint, and the intelligent treatment of this detail will obviate any necessity for the use of reflectors. As a matter of fact, the most experienced operators depend little, if at all, on the use of reflectors in obtaining their lightings. With a properly constructed light and a reasonable knowledge of its handling, there should be

no occasion for the employment of such a makeshift. The great failing of those who depend on a reflector is to place it too close to the subject. This invariably falsifies the illumination of the shadows, and gives them an unnatural intensity. The obvious remedy for this defective practice, where the use of the reflector is thought to be necessary, is to begin by placing it as far from the subject as possible, and then to closely observe the changing effects as it is gradually brought nearer to the sitter, until it is seen to slightly ease the heaviness

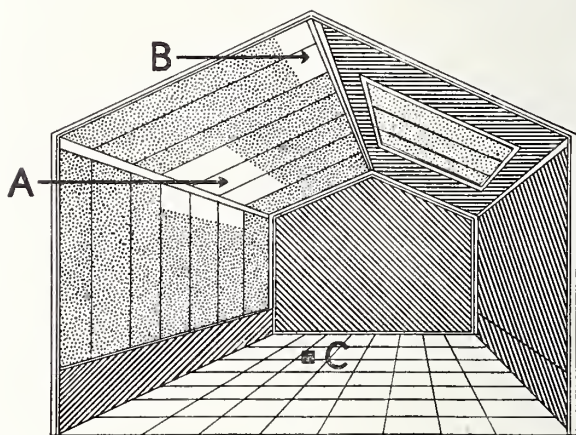


FIG. 7

of the shadows, without merging the delicate lighter tones into the high lights. In my own practice, I get all the effects usually obtained by a reflector by opening a small light area, about two or three feet square, at a point in the skylight marked B in Fig. 7.

Having thus dealt somewhat fully with the general principles of this method of lighting, I need not repeat them in discussing other methods in which they have an obvious application. Before proceeding to these other methods, however, it may be profitable to make room for a few notes about the use of plain or 45° lighting.



Fig. 8. Example of side lighting.
R. H. Furman. See page 170.

**The Best
Side of the
Face**

An important point is to make sure as to the "best" side of the sitter's face before attempting this lighting. Every human face has its "best" side, and most persons have a definite knowledge of this peculiar fact. No amount of skill in lighting or posing can overcome an error in this detail.

**Overmuch
Top Light**

Another point is that the more directly overhead the light is to the sitter, the more pronounced will be the modeling of the features. This applies with special force to portraits of women. A preliminary glance at the sitter will usually determine the right position of the subject in this regard. In no case should the light side of the face be blocked or chalky from the highlight on the forehead to the chin. The temple, the cheeks under the eyes and near the ear, the side of the nose and the curving of the face to the chin, should all show delicate modeling by varying degrees of tone or shade. Too strong a toplight will give a spotty effect, the shadow masses especially being too abruptly defined and lacking in life. On the other hand, the predominance of side light will accentuate contrasts and exaggerate the projection of the features, so that the portrait will lack plasticity.

For head and shoulder work, when what is known as a straightforward portrait is desired, no other style of lighting will give results as satisfactory as this plain lighting. With the average subject, it gives the most pleasing aspect of the head and face, and is equally suited to youth and age. Properly handled, it will often give distinction to an otherwise unprepossessing face, being especially favorable to the round, full face, which needs all the modeling we can put into its presentation. In such a case the light should be so directed as to run down through the center of the face from forehead to chin, so that the too-full sides of the face may softly grade away into shadow.

While the method of lighting illustrated in Fig. 8 is not so widely employed in everyday portraiture as plain or 45° lighting, it is rightly regarded as one of the most desirable of conventional schemes of lighting. One

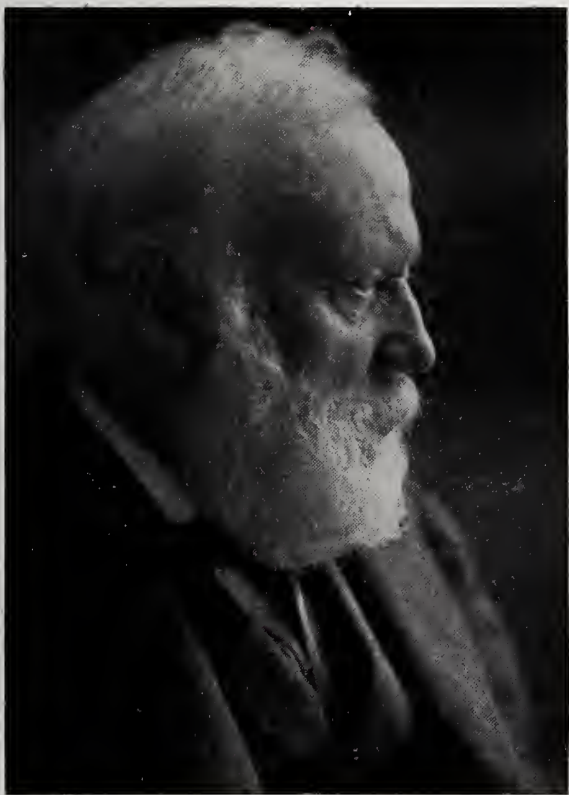


Fig. 9. Example of side lighting.
D. D. Spellman. See page 173.



Fig. 10. Showing the typical arrangement of studio, blinds, camera and sitter for side lighting. See page 173.

reason for this is, undoubtedly, its tendency to favor or flatter the sitter, due to the plastic effect it imparts to the features. Another reason is found in its extreme simplicity when once the underlying principles are appreciated. Its effects are easily obtained in a studio fitted with the usual side and top lights and blinds, or in the more modern single-slant skylight, as well as in an ordinary room with a high window. It is not suited to certain types of subject, as, for instance, a long, thin face, or one with features of marked irregularity. But to the beautiful, well-rounded face of a woman it will often give the further grace of refinement, while to a face expressing character it will generally add force and virility, as we see in Fig. 9. In these two examples its adaptability to subjects of different classes is well evidenced. Let us note, in passing, that side lighting is not so well calculated to give that striking element of likeness which is peculiar to plain or 45° lighting.

The main idea of the scheme of side lighting, as indicated in Fig. 10, is to bring the light area down almost level with the sitter. The open area, however, should not be too low, or it will give undesirable qualities. For women, the main direction of the light may come from a point just above the eyes. With men, where sharper contrasts of light and shade are desirable, the angle of illumination may be steeper, as in Fig. 9. When correctly handled, the light should softly envelope the head and shoulders in gentle gradations, the head itself giving a soft shadow mass extending from the middle of the cheek to the far outline of the hair, the neck and far shoulder (if shown), being almost imperceptibly outlined in half-tone. It will be obvious that the softness or force of the light effect will depend on the size of the light area and its position in relation to the subject.

Begin by opening the side blinds and
How to Do It the lowest blind on the skylight, so as to get a light area of from four to five square feet. Place the sitter about eight or ten feet away from the sidelight and at right angles to it. Let the body almost face the far end of the light area, the back to the camera, and the face or head turned so as to get the most

pleasing balance of profile, hair-dressing, neck and shoulders. This will give us the effect shown in Fig. 8. If it is not wholly pleasing with the subject in hand, or the lighting on the face is too evenly divided into equal halves of light and shade, move the sitter farther away from the camera and at right angles to the light, when the lighting will approach that given by the 45° scheme, except that the shadow side of the head and face will not be so well illuminated, and the outlines will be more forcibly emphasized. The slightest changes, whether in turning the head to or from the camera, enlarging or diminishing the light area, or raising or lowering the main direction of the light, will now be seen to produce marked differences in the light effects obtained. When, by watchful observation, an arrangement is arrived at which is favorable to the sitter, the exposure can be made with complete confidence as to the results in the negative. Develop for shadow detail.

"Rembrandt" or Line Lighting Somewhat reluctantly I am obliged by custom to abuse the name of Rembrandt here to describe a style of lighting which is popularly known as "Rembrandt lighting," but which should more properly be called line lighting. It has nothing in common with the characteristics of the works of the great master of light and shade, but is really an accentuated variation of side lighting in which the illumination is concentrated behind the head and face of the subject, so that the greater part of the face seen in the portrait is rendered in shadow, only the outline of the profile, with part of the forehead and cheek being strongly lighted.

By whatever name it be called, this style of lighting is very effective when properly handled with a suitable subject. It is adapted only for subjects possessing either a pleasing profile or features of well-marked individuality, the concentration of the light bringing these into startling prominence. Generally speaking, it is not suitable for round or well-filled faces accompanied, as these often are, by short, stumpy noses. On the other hand, faces or profiles of the so-called Grecian type may be pleasingly portrayed by line lighting, especially when the arrangement of the hair, the hat or other head cov-



Fig. 11. Example of "Rembrandt" or line lighting.
H. Essenhigh Corke. See page 177.



Fig. 12. Showing typical arrangement of studio, blinds, camera and sitter for
“Rembrandt” or line lighting. See page 177.

ering, can be utilized to lend pictorial effect to the composition. Fig. 11 is an example of this effect of lighting, and Fig. 12 shows the general arrangement of light, sitter and camera in making such a lighting.

As we see in Fig. 12, the disposition of these details resembles the arrangement made up for side lighting; but the sitter is placed nearer the light, the light area itself is smaller and relatively higher considering the nearness of the sitter, and the camera is moved to about the center of the studio width, so that the sitter is seen against the light. A variation of this arrangement is obtained by the use of a low background almost parallel with the side light, so placed that the light falls on the sitter from above the background. Where the profile of the subject permits the head to be slightly tilted upward with pleasing effect, this method gives very desirable results.

Line lighting is not an easy method to handle. It demands discriminating selection as to the subject and a keen sense for pleasing lines. The mass of shadow enveloping the face, neck and near shoulder also requires careful management. This shadow mass should be transparent and really full of subdued detail and modulation. Reflections will often cause difficulty, but these can be remedied by removing the cause. Especial care should be taken to shade the lens from direct light, remembering that we are photographing against the light. This can be accomplished by using a background which is sufficiently high or large to include camera and lens within its cast shadow, or by the use of an extra-large lens hood. A common source of failure with this style of lighting is found in the tendency to under-exposure and over-development. It should not be forgotten that here, as whenever we have to deal with large shadow masses in a composition, a full exposure is essential to the securing of correct tonality. The rule should be: expose for the shadows and stop development as soon as the high lights have attained the desired density.

Diffusing
Screens

Although the three styles of lighting thus far described will meet most of the requirements of everyday portraiture, it must not be imagined that they cover the possibilities of studio lighting. In reality, they form only the basic prin-

ciples of lighting and are susceptible of endless variation and modification. It is in his mastery of these elementary methods and their variation to meet the individual requirements of his subjects that the skill of the portraitist is shown. In a few of these modified lightings now to be considered, the use of diffusing screens and similar conveniences for controlling the illumination of the subject is of much importance.

We will take first the small, adjustable diffusing screen shown in Fig. 13. In one or another form this diffuser is used in many prominent studios, but its usefulness is

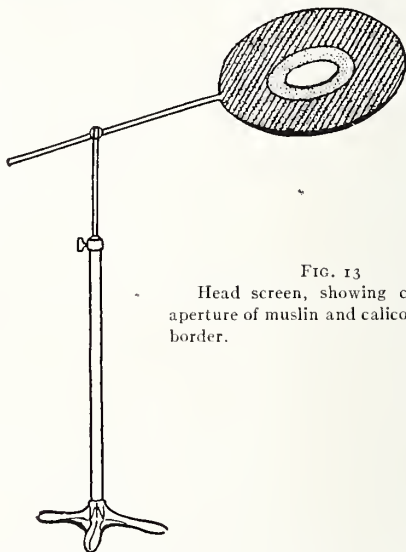


FIG. 13

Head screen, showing central aperture of muslin and calico outer border.

not as generally appreciated as it deserves. Most supply dealers offer an adjustable head screen, in which the screen itself is made of white cotton or calico, the hood being about twenty-four inches in diameter. With this the reader can readily construct a diffusing screen to suit his special requirements. For example: In order to give a sharply modeled effect, with well-marked high lights, to a full, round face, I prepare my diffuser as follows: Cut a hole twelve inches in diameter in the or-

dinary twenty-four-inch calico screen and stretch open-mesh bookbinders' muslin over the hole. Within this inner space of muslin cut a smaller hole, say six inches in diameter, as seen in Fig. 13. With this improvised diffusing screen ready for use, open the studio blinds as for the normal 45° lighting, place the diffuser quite close to and, of course, slightly above the level of the sitter's head, and you will see that the slightest movement of the screen produces a marked difference of effect in the

lighting, enabling you to suit the lighting more closely to the needs of the individual face than can be done readily with the studio blinds alone. In such a diffuser we have really a three-fold, graded screen. The larger shadows are still sufficiently illuminated by the light passing through the outer rim of the screen; the half-tones between lights and shadows are softly graded by the second section of bookbinders' muslin, and the small beam of bright light passing through the center opening unscreened supplies the sparkling high lights on any desired portion of the face which give animation to the portrait. See also Fig. 13a.

Shading Screens

In brilliantly
lighted studios,
or for special ef-

fects, a similar screen with the outer rim of the hood dyed to a pale rose color will be found advantageous. For what is sometimes called shadow lighting, i. e., where the face is turned

from the light and is shown in shade against a light ground, the diffuser is replaced by an opaque screen surrounded by a rim of tracing cloth or stout calico to soften the edges of the shadow. Small opaque screens

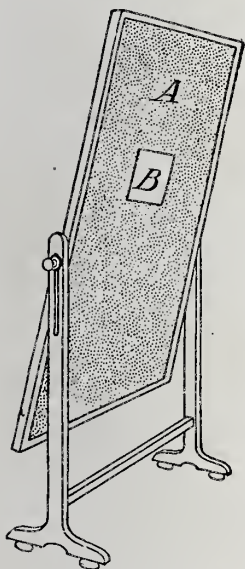


Fig. 13a. Large diffuser. Frame-work A is adjustable up and down and on swing, and consists of semi-transparent material, in which an opening B is cut out.

for hand use are also often desirable to kill troublesome reflections or give special force to the shadows of the face, and are used just as hand-reflectors are used. For the more elaborate control of lightings in three-quarter or full-length portraits, a larger screen will be required, but as such a screen will be needed for lamp-light effects its description will be given later. The Century Co. offers such a series of handscreens, and the King Light Controller affords a very complete battery of reflectors and screens for the same purpose.

Another form of light-screen which possesses many advantages is, I believe, in more general use in America than in this country, and consists (Fig. 13a) of a large square screen of semi-transparent material mounted on a stand and adjustable in all directions. Its chief advantage is that in the center a small opening about one foot square is left clear, so that whilst it softens the general illumination over the whole subject, yet a small beam of bright light is allowed to pass undiffused on to the model.

The use of the small hand-screen is well illustrated in the style of lighting introduced by C. C. Kough, an example of which is shown in Fig. 14. (Frontispiece.) This style is most effective with subjects in evening dress, where the neck and shoulders are exposed, and in profile portraits. It gives the portrait peculiar roundness of effect and a pleasing sense of relief or modeling. Mr. Kough describes his method of obtaining this lighting as follows: "I place the sitter eight or ten feet or more, as the place requires, from the side light, with the back to the light (mine is the old style of studio with side and top light), and the face looking from the side light. Shut off nearly all the light from the top. If, in this position, the face is too much in shadow I turn my subject, bringing the face more broadside to the side light, so that the eye is properly illuminated without giving flatness to the face. After I get the head properly lighted, I take a small head screen and place it so that it will give just enough shadow on the outline of the back of the neck to give it roundness and relief from a white ground. The whiter the background is, the better; and it should be kept far enough from the sitter, so that no shadow



Fig. 15. Example of white background lighting.
H. Essenhigh Corke. See page 183.



Fig. 16. Example of lighting to secure pencil sketch effect. H. Essenhig Corke. See page 183. [The engraving fails to reproduce the delicate shadings on the dress.—EDITOR.]

will fall on it from the subject, as this will reduce the sense of relief in the head and shoulders. When these details have had attention, I remove the camera to the side light so as to get a profile view of the subject, make the exposure, and the deed is done. It requires a little practice to put the shadow just on the outline of the neck and shoulders without shading the head too much. A small head screen is best, one about 18 inches in diameter. After a few trials this method of lighting will come quite easy and its adaptability for different sorts of subjects, such as women and children, will be apparent."

Light Back-ground Work During recent years the use of white backgrounds for subjects in white or light dresses has brought forward a popular style in portraiture which requires special treatment in the lighting of the sitter. The general arrangement of the studio blinds for effects of this character, such as we see in Fig. 15, may be as indicated for plain or 45° lighting, except that the light area may with advantage be double the usual size and a reflector must be employed, this being placed as near to the subject as is practicable.

The background used must be painted a distinctly blue-white, the ordinary white paint quickly taking on a yellowish tinge which makes it impossible to get a soft, white ground in the print. The necessity of using the white blinds to secure diffusion and a soft light enveloping the subject will be apparent. For this lighting the exposures should be full almost to the extreme of flatness, and the negatives should be developed so as to secure a thin but full graded image, in which there are no patches of clear glass or absolute opacity except the opacity of the background.

Pencil Sketch Effect As a variation of this light background work, portraits resembling pencil sketches can be obtained, as follows (see Fig. 16): The sitter is placed before the white ground, as arranged for light background work. Then a reflector, as shown in Fig. 17, with the dark blind drawn up over it, is placed as near as possible at the side of the sitter, who should preferably be posed in profile. This dark reflector causes the face to assume a darker tone than the dress

and gives a slightly shaded outline as shown in the example. When properly handled with an appropriate

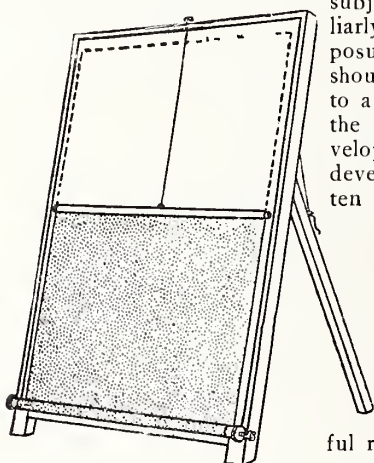


Fig. 17. Diagram of reflector; dark material shown half drawn up. Dotted lines show material drawn up to its full height.

subject this style is peculiarly effective. The exposure for this lighting should be double that given to a normal lighting, and the plate should be developed in a fairly strong developer to soften or flatten the modeling. If the

shadows, hair, etc., show up too darkly in the first proof from a negative made in this manner, these can be lightened by a little color applied to the glass side of the negative or careful retouching on the film.

ful retouching on the film.

Firelight Effects

In strong contrast to the styles

last considered, come those in which the lighting is arranged to give firelight effects, as seen in Fig. 18. This method of lighting, worked out and introduced by the writer two or three years ago, has proved immensely popular, and has almost completely displaced the earlier methods of obtaining these effects by the use of flash-lights. The daylight method is exceedingly simple in handling and is peculiarly adapted to the portraiture of children and young women.

For this lighting, the entire studio should be darkened, that is, with all the blinds closed except a small space 18 inches square at the bottom of one end of the side light. If the side light does not extend to the floor, it will be necessary to provide a temporary platform bringing the floor up to the level of the window so made. On this platform the sitter is posed, either lying or sitting on a rug or low seat so that the whole of the subject



Fig. 18. Example of "firelight effect" lighting.
H. Essenhigh Corke. See page 184.

is illuminated sufficiently to simulate the familiar effect given by firelight.

**A Fireplace
Accessory**

It is not necessary to include the whole of the fireplace, but a brass fender (or a property fender kept for such work) may be laid in front of the window and partly included in the picture space to give the note of realism to the firelight effect. Where, however, it is desired to show a complete fireplace in the picture, a studio firemantel accessory can be obtained through any large dealer, such an accessory being in the market here and in England. In the model designed by the writer, the "firelight" is reflected from a mirror placed within the accessory. Presumably the American model has a similar device, although I have not seen this model.

**The Working
Method**

For the ordinary method of working with the small window, a plain, dark background is placed about five feet away at right angles to the window, or slightly inclined away from the light to avoid reflection. A dark rug or floor cloth is used so that the light effects are concentrated on the sitter. As no shadow details are desired in such pictures, the shadows given by firelight being usually heavy and somber in tone, the exposure need not be protracted, one or two seconds being sufficient. Develop for the high lights only, using a soft working developer such as metol or azol, and take special care to keep the plate clear and clean.

Used with discrimination and nicely applied, this lighting provides a pleasant variety among everyday studio effects. The illusion of the firelight effect can be enhanced by dyeing the prints in a suitable stain, such as eosin stain, to be found among the Burroughs, Wellcome specialties; but this detail can easily be overdone and a warm-toned brownish-red print on a buff paper will usually satisfy reasonable demands. It is obvious that in making firelight pictures, where the subject is posed upon a rug, a great deal of one's success depends upon the arrangement or pose of the subject, and in this detail the chief difficulty of using the method is usually found. Simple and natural arrangements, here as elsewhere, are invariably the most pleasing.

**Lamplight
Effects**

The production of lamplight effects by daylight lighting calls for a little more care and trouble than the preceding method, but the results are generally pleasing and the style adds a desirable variety to every-day work.

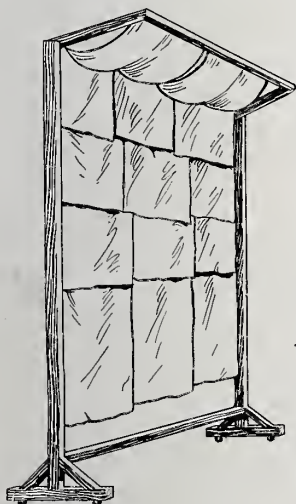


Fig. 19. Combined head and body screen.

For this style we need a few accessories or helps, the first being a combined head and body screen similar to that shown in Fig 19. This screen consists of an upright frame upon which are hung small, dark blinds of sateen or other soft material very similar to small casement curtains. Each blind or curtain should overlap that next to it, so that all light except that really needed can be excluded at every point. The upright screen so obtained should be about six feet in width and eight feet high, the small blinds being each about two feet square.

**Lamp and
Screen**

As in this scheme it is desirable to

include the lamp as the source of the illumination, we next need a dummy lamp which will serve this purpose and lend the necessary sense of illusion to the lighting of the portrait. To make this property, an ordinary parlor lamp with a silk shade should be taken into a darkened room, and a quarter of an inch of magnesium ribbon suspended inside the shade by a piece of fine wire, occupying the place of the wick flame. Focus a camera on the lamp and make a good technical negative by exposing a backed or non-halation plate during the time the magnesium ribbon takes to burn. The lens should be stopped down to F. 8 for this exposure. From this nega-



Fig. 20. Example of "lamp-light lighting effect."
H. Essenhigh Corke. See page 187.

tive a bromide enlargement is made to obtain a picture showing the lamp in the same size as the original. This is mounted and the lamp carefully cut out. The edges of the cut-out lamp are blackened and a good stout back-strip is next attached so that the dummy lamp will stand upright on table or pedestal. With these accessories lamplight pictures such as we see in Fig. 20 may be made without difficulty.

In making lamplight portraits the
The Method studio should be quietly illuminated, without too much light, one side of the studio being darkened. A portion of the side light equal in size to the screen is fully opened and the screen, with all its curtains closed, is placed close to this light aperture to completely obscure it. Now place the sitter in any convenient arrangement (as, sitting at a table) with the dummy lamp between sitter and screen, and as close to the screen as possible. A single curtain in the screen is now opened and a flood of light will enter where the lamp is placed, pouring past until it seems to fall on the subject from the lamp itself. If the lamp and light aperture are correctly placed for normal lighting, the head and bust, arms, etc., of the subject will be pleasingly illuminated, while the diffused light of the studio will sufficiently light the shadows and those parts of the picture not reached by the main light coming through the screen. More elaborate lightings can be obtained by the use of other light apertures in the screen and the employment of diffusing curtains to control the illumination of the figure at any desired point. These modifications, as with all other schemes discussed in these pages, will be apparent as the reader familiarizes himself with his work on the principles here briefly set forth.

H. ESSENHIGH CORKE.

Notes and Comment

The International Exhibition of Pictorial Photography, now being held under the auspices of the Buffalo Fine Arts Academy at the Albright Art Gallery, Buffalo, N. Y., is clearly the most important event of the current year as far as photography is concerned. The exhibition opened November 4, and will close December 1. It should be seen by all who can possibly spend a day in Buffalo between the dates mentioned. No previous exhibition held in America can compare with this, either in scope or richness of interest, or as representative of the world's progress in pictorial photography, from the days of David Octavius Hill to the present time. The "Foreword" to the catalogue of the exhibition, evidently very carefully prepared, gives the significance and purpose of the event as follows:

"The aim of this exhibition is to sum up the development and progress of photography as a means of pictorial expression. The Invitation Section consists largely of the work of photographers of international reputation, American and Foreign, whose work has been the chief factor in bringing photography to the position to which it has now attained. It comprises a number of 'one man's shows,' and in many instances these exhibits include a number of prints executed quite recently. The prints in this entire section have been selected because of their intrinsic quality; while many have also the additional interest of marking special stages in its development. Many of these prints could be included only through the kindness of private collectors. In view of the comprehensiveness of this historical survey, the excellence and scope of the work of each individual represented here, and the evidence of the present day vitality of Pictorial Photography, this exhibition aims at something more thorough and definite than ever has been attempted heretofore in any previous exhibition, either in America or abroad.

"The Open Section was added to this exhibition to give all American photographers an opportunity of being represented; and such of their work was selected as proved to be of a sufficiently high standard to link it with the spirit and quality of the Invitation Section."

The Invitation Section comprises 495 prints, representing the work of D. O. Hill (1802-1870), J. Craig Annan, Malcolm Arbuthnot, Walter Bennington, Archibald Cochrane, George Davison, Frederick H. Evans, J. Dudley Johnston, Frank H. Reed, all of Great Britain; Robert Demachy, Celine Laguarde, René Le Begue, and C. Puyo, representing France; Hugo Henneberg, Heinrich Kuhn, Hans Watzek, Th. and O. Hofmeister, and Baron A. De Meyer, representing Austria-Germany; Annie W. Brigman, John G. Bullock, Alice Boughton, Rose Clark, Alvin Langdon Coburn, F. Holland Day, W. B. Dyer, Frank Eugene, Gertrude Kasebier, Jos. T. Keiley, Frederick H. Pratt, Harry C. Rubincam, Geo. H. Seeley, Ema Spencer, Katharine Stanbery (Mrs. Burgess), Eduard J. Steichen, Alfred Stieglitz, Edmund Stirling, and Clarence H. White, representing America.

In the Open Section there are photographs by Charlotte S. Albright, Paul L. Anderson, Chas T. Archer, Laura Armer, Jeanne E. Bennett, Elizabeth Buehrmann, Mrs. C. B. Bostwick, Robert Bruce, Francis Bruguière, Sidney Carter, Pierre Dubreuil, J. Mitchell Elliott, Arnold Genthe, Paul B. Haviland, J. B. Hodgins, R. S. Kauffman, M. R. Kernochan, Nuella Kimball, Wm. J. Mullins, W. & G. Parrish, W. B. Post, Karl F. Struss, Augustus Thibaudau, Chas. Van Dervalde, Amy Whittemore, Myra Wiggins, Eleanor W. Willard, and F. C. Baker.

The total number of prints shown, about six hundred, represents almost sixty exhibitors. The prints represent almost every variety of the bromide, carbon, platinum, gum bichromate, oil, ozotype, and gravure processes, platins and gums being in the majority. The pictures by D. O. Hill, which may be said to represent the beginnings of pictorial portraiture, include thirty-five original calotypes. The arrangement of the prints on the walls, due to Messrs. Max Weber, Alfred

Stieglitz and Clarence H. White, is in every way ideal, giving each picture a position "on the line."

It is, of course, quite impossible to review the exhibits here in detail, but I hope that every reader of this who can manage the trip will make his or her pilgrimage to Buffalo during November and see the exhibition in person.



Our Trouble Number. That check for ten dollars, offered on page 99 of THE PHOTO-MINIATURE, No. 110, for the most practical suggestion for a PHOTO-MINIATURE monograph, went to Malcolm Dean Miller, M. D., of Boston, his suggestion being "Beginners' Troubles." So clear and practical was Dr. Miller's suggestion and outline of treatment that I persuaded him to write the monograph. It will appear in an early number and usher in the golden age.



The competition did not awaken as large an interest as I expected, but all the suggestions were good; whether practical or not. A woman competitor suggested that I "bunch" a hundred of the suggested subjects and discuss them on the basis of a page apiece, thus making up an issue which would undoubtedly offer a variety of interest and usefulness. Alas—there were not a hundred suggestions all told, although some competitors sent three or four.



This month, the competition is organized on the "Votes for Women" idea and is for women only. A check for ten dollars will be sent December 31 for the best picture received from a woman photographer—an example of her own work throughout. By the "best picture" I mean the cleverest or most pleasing bit of photography received. Any subject, any size larger than $3\frac{1}{4} \times 4\frac{1}{4}$. Open to amateurs and professionals—women only. The winning print is to become the property of the editor of this magazine. All other prints will be returned, provided that sufficient postage is enclosed for this purpose when the prints are sent.

The Russian Photographic Society, Moscow, Russia, asks me to announce its International Photographic Exhibition, which will be held March 14 to May 7, 1911. The conditions for exhibitors have already been sent to all American photographic clubs and societies, but are now modified as follows, to induce a large representation of American work: (1) Exhibits from photographic societies will be admitted without charge for space. (2) The customs duty on exhibits will be settled by the Russian Photographic Society, and will be charged to exhibitors only in the event of the sale of a picture, and, if desired, the Society will undertake to add the duty charge to the price named by exhibitors. P. Betton Done, Secretary of the American Section, care of Russian Photographic Society, Kusnetsky Most, Passage Djamgaroff, Moscow, will gladly send any further information desired on request.



Will my readers please note that the factory and office of the C. P. Goerz American Optical Co. is now located at 317-323 East 34 St., New York, right in the heart of the dear old town, where they may see a collection of unusually interesting photographs, "made with Goerz lenses," of course, and all the latest models of the Goerz-Anschutz, Goerz Tenax, and other cameras as made by this firm, or get expert advice as to the use of any Goerz specialty.



Likewise, please note the removal of the Multi-Speed Shutter Co. to 317 East 34th street, New York, right at the center of things and most convenient for visitors curious about the wonderful Multi-Speed Shutter, Novo Horizontal-Development Tanks and other inventions of the ingenious Gustav Dietz—who can be seen in person, if you are sufficiently persistent in demand.



Among my visitors, during the past few days, were Frederic Eugene Ives, who is doing wonderful things in the line of color photography; Alvin Langdon Coburn,

who came over from his London studio to see the Buffalo Exhibition and launch his new portfolio, "New York" (similar to the "London" portfolio of a year ago)—choice Coburn photogravures and a foreword by H. G. Wells; Stephen H. Horgan, fresh from a trip over the continent and back again in the interests of the Axél Holmstrom Etching Machine, and enthusiastic about the progress of reproduction methods everywhere; Carl Ackerman, from across the way, bubbling over with plans for his forthcoming "Photographic Directory" (to be published shortly); Charles O. Lovell, from Boston, full of optimism and talk of his new "Magnet" plates, which the wise men of the East are using in preference to all others; Juan C. Abel, from Cleveland, attired in the "latest gray effects," small check, with heavy black and white diagonal overcoat, pockets bulging with photographers' booklets (57 varieties), and the man himself sparkling with life and gossip "not for publication;" and, last but not least, a charming woman from Joplin, Mo., who shall be nameless here, but who gave me a delightful half-hour's glimpse into her photographic life and—subscribed for THE PHOTO-MINIATURE.



Making an index is a bothersome job for a busy chap, especially if he has the notion that THE PHOTO-MINIATURE is a self-indexing institution. So the Title Page and Index for Vol. IX, THE PHOTO-MINIATURE, are not yet ready. This much by way of explanation. Will those who really want copies of the Index please put in their applications at once. The Index is sent for a 2-cent stamp—when published. A librarian, out in Denver, complained that the price was extortionate, but it merely pays the postage at first-class rates.



Judging from many communications received from friends in California, San Francisco seems to want to hold an International Exposition in 1915, to celebrate the completion of the Panama Canal. I am asked to "boost" the project, and to urge the readers of THE PHOTO-MINIATURE to write to their Congressmen and

Senators to support the proposal that Congress authorize the President to invite the nations of the earth to participate in this Exposition.

I can see no reason why San Francisco should not have the Exposition. Seattle has had hers; Portland had his, and New York has just decided that it does not want one under any circumstances. The way seems clear for San Francisco to have what she wants and deserves. Send to the Panama-Pacific International Exposition, Merchants Exchange Building, San Francisco, asking for the little booklet entitled "Facts for Boosters," and you will agree with me in all here said.



The Century Camera Division, Rochester, N. Y., has just introduced a series of small screens for use in studio portraiture, which run very closely along the line of those mentioned in this issue, as helpful conveniences in this work. We note also that the same house is announcing a Sepia Spotting Pencil, which is just the thing (as I have proved by experience) for retouching and working upon Sepia prints of every sort.



The Photo-Secession has added considerably to the gaiety of nations since its golden effulgence burst across the horizon. I am a strong admirer of *The Photo-Secession*. It is very much alive and dearly loves a fight. The very latest outburst, apart from its triumph at Buffalo, comes in the shape of two pamphlets dressed in Quaker gray, entitled "Photo-Secessionism and Its Opponents." The first consists of five letters and the second of "Another Letter"—the Sixth. These letters are of the intimate, personal sort, and must be read to be appreciated. Address Alfred Stieglitz, Photo-Secession, 291 Fifth Avenue, New York.



The Photographic News, edited by Carl E. Ackerman and published monthly from 42 East 23rd street, New-York City, is a new photographic journal "for the working photographer." It provides a goodly proportion

of news and is very pointed in its comment and advice. \$1 a year.

The eternal question about "depth of focus" will not lie quietly in its grave. Here is the latest question: "If we have two or more lenses of equal focal length working at identical apertures, will not "depth of focus" vary with the relation of the size of the image to the size of the object?" And the answer. "Yes. The smaller the object or the farther away it is from the camera, the greater the distance before and behind it in which objects will be sharply defined."

Here's something to brag about! At the recent Brussels International Exposition, Messrs Burroughs, Wellcome & Co., London and New York, were awarded no less than eight Grand Prizes, three Diplomas of Honor and a Gold Medal for the excellence of their products; while at the Japan-British Exhibition, held at London a few months ago, they secured five Grand Prizes and another Gold Medal for the same honorable cause. This is a remarkable record, and should convince the most skeptical that B. W. & Co.'s new developer Rytol is worthy of a trial. Also, that it would be wisdom to test the practical convenience of the Wellcome Exposure Record and Diary for 1911 (now ready at all dealers') with its hundreds of hints and suggestions not to be found elsewhere, and a real exposure calculator—all for fifty-cents.

An attractive line of dark-room lamps, at prices ranging from 40 cents to \$5, is shown in an illustrated booklet issued by Burke and James, Chicago. The variety includes lamps for use with candle, oil, gas or electric light and makes a more complete showing than I have seen elsewhere.

Much curiosity has been aroused by mention in various European photographic papers of the experiments

of M. D'Osmond with flashlight powders for autochrome work. I have seen the paper, read by M. D'Osmond before the French Photographic Society, and it is extremely disappointing in that it gives neither the formula for the special flashlight powder, nor the spectrum of the special color screen devised for use with the powder employed in the experiments related.



George Murphy, Inc., 57 East 9th street, New York, American Agents for Ross Lenses, Autotype Carbon Tissues, the British Journal Almanack, and a host of other good things from across the water, have just published a general catalogue which provides as complete a reference book to the photographic market of today as any one could desire. Enclose 10 cents to cover the postage when you write for a copy.



A few days ago I had the pleasure of looking over the originals of the pictures reproduced in *The American Annual of Photography*, 1911, which is to be ready early in December. They made a splendid showing, decidedly better in interest and quality than the collections I gathered for the three volumes of the "Annual" I edited (1908-9-10). Mr. P. Y. Howe, the editor of the 1911 "Annual," is to be congratulated upon his good fortune in securing so many "good things" for the embellishment of his volume. Unless I am mistaken, it will be the best of the series as far as illustrations are concerned.



The Prize Reversible Developing Tank, the Montauk and Auto Tank [G. Gennert, New York and Chicago] are described and illustrated in an interesting booklet which can be had for a postal card addressed as above. They are worth knowing about.

Books and Prints

All books noticed in these pages may be obtained from the publishers of **THE PHOTO-MINIATURE**, and will be promptly forwarded, postpaid, to any address on receipt of the publishers' prices as here quoted.

With Other Photographers. By Ryland W. Phillips. 67 pages, illustrated. Price, \$2.50. Eastman Kodak Company. One of the most popular features of the professional Conventions during the last year or two was an illustrated lecture by Ryland W. Phillips, of Philadelphia, showing selected examples of portraiture by notable American and foreign professionals, with some account of their working methods under the sky-light. In the volume here noticed, we have this lecture set forth in type with a full scheme of illustration, which gives us an interesting account of many well-known professionals, carefully chosen examples of their work, and special illustrations showing the interior of the studio, the position of the subject and the arrangement of the accessories at the time the selected study was made in each case. Without doubt, this is the most interesting, as well as the most helpful demonstration of studio methods, and professional photographers everywhere are indebted to Mr. Phillips for the practical teaching and inspiration of this handsome volume.



Photographing in Old England, with Some Snap Shots in Scotland and Wales. By W. I. Lincoln Adams. Price, \$2.50. Baker & Taylor Co., New York. This is a beautifully illustrated record of a journey through rural England, Wales and Scotland, by the editor of "The Photographic Times," whose skill as a photographer is well known. Mr. Adams and his family journeyed along the Thames from Windsor to Oxford,

through the country of the Doones, to many of the beautiful cathedral cities, the delightful English lake country, and through some of the most charming parts of Scotland and the Principality of Wales. Apart from the chapters which describe the author's experiences and impressions, there is a supplementary chapter giving valuable hints and suggestions for those who intend photographing abroad.



Landscape and Figure Composition. By Sadakichi Hartmann (Sidney Allan). Price, \$3. Published by Baker & Taylor Co., New York. This profusely illustrated volume is made up of chapters on landscape and figure composition, originally written by Sadakichi Hartmann for *The Photographic Times*, wherein they appeared during the past year. Mr. Hartmann is widely known as an art critic, and speaks with authority in all matters pertaining to pictorial photography. A careful reading of this latest volume from his pen convinces us that it is one of the most useful books on its subject, and we cordially recommend it to all interested in the pictorial treatment of outdoor subjects.



Although the use of photography in medical practice has increased vastly during the last few years, there has been little or nothing of importance published about new methods or applications in this special field. We, therefore, note with interest an important article titled "Medical Photography," by Dr. Nathan T. Beers, of Brooklyn, which appears in the *New York Medical Journal*, No. 1662, October 8. It is well worth seeing by all who are interested in the usefulness of the camera as an aid in medical and surgical practice.



The man who suggested "Which Lens, and When, and Why," as a subject for THE PHOTO-MINIATURE, will find just what he needs in a little handbook written by R. D. Gray, under the title "The Lens Part of Photography." R. D. Gray has thirty years of lens making

behind him, and his handbook gives the plain facts and figures, with a few good examples of lens work. The book will be ready, at all dealers, about December 15th, price 25 cents. The price is absurd. I paid R. D. Gray \$50 a few years ago for the MS. of a lens book not one-half as "meaty" as this little handbook. Better worry your dealer until you get your copy!



Photomicrography is the title of the latest Wratten & Wainwright, Ltd. (Croydon, England) booklet. Like the other booklets of this house (published to help sales of goods), it offers more practical information and common sense about its subject per square inch than many larger and more expensive text-books. No price is mentioned, and Messrs. W. & W. do not seek American business, but I suppose any one really interested in photomicrography can secure a copy by writing to Wratten & Wainwright, Ltd., for it and mentioning this note.



Photograms of the Year 1910. A literary and pictorial record of the best photographic work of the year. Edited by H. Snowden Ward, F. R. P. S. Stiff picture wrapper \$1.25 postpaid. Cloth, full gilt \$1.75. New York: Tennant and Ward.

Big improvements are seen in *Photograms of the Year 1910* as compared with earlier issues. There are the same collection of about 200 selected pictures, the reports on the progress of pictorial photography in Great Britain, Germany, France, and so on, and the constructive criticism on the pictures reproduced, by the Editor, all as in past years. But the text is made vastly more interesting and offers crisp reading; the pictures are better and more carefully printed, the paper used is the best obtainable for half-tone work, and no less than twelve photographs in three colors are given as supplements. Of course this means increased cost, and the price of the book has been advanced to \$1.25 (stiff picture wrappers), and \$1.75 (cloth, full gilt), but the book is well worth its price.





Broadway at Night
By Alvin Langdon Coburn
(From his recently published "New York")

The Photo-Miniature

A Magazine of Photographic Information

EDITED BY JOHN A. TENNANT

Volume X

OCTOBER, 1910

Number 113

Zimmerman's New Method of Gum-Bichromate Printing

A gum-bichromate print is a print made on paper coated with a simple mixture of gum and bichromate of potash, with which a pigment has been incorporated. The picture image of the completed print consists of insoluble, bichromated gum, the color of the image depending on the pigment employed. In the making of "gum" prints, almost any kind of paper may be used at will, although some papers are more desirable than others, for reasons which will be obvious later. The gum may be any colloid substance, but gum arabic is generally used, as wholly satisfactory and most convenient. The pigment may be any insoluble water-color. So, in the gum print, we have absolute control over the paper base, as to its texture, weight, color, finish and general character. We have a practically unlimited range of color; and, if the pigment chosen is permanent, we get a practically indestructible, permanent print.

As a printing process gum-bichromate is little known to the majority of those who use a camera. And it is largely misunderstood by those who know a little about it. But we must change all this. Every printing process has its good points and peculiar advantages, but few are so well worth knowing as the gum-bichromate process. Those who know it best are rightly enthusiastic in its praise. Those who know it only imperfectly are generally loud in its condemnation. A really good gum print of an appropriate subject is a thing of won-

der and delight—worth infinite pains. A poor or mediocre gum print, on the other hand, excites contempt and execration where a plain photographic print from the same negative would pass without comment. Many of the illustrations herein are reproductions of gum-prints; but you must not, in fairness, judge the process by them. Gum prints do not lend themselves to fine screen reproduction on glossy white paper. This treatment robs them of almost every virtue they possess. And the gum print demands size—largeness of space.

A Process Worth While Gum-bichromate printing is an old method in photography, almost as old, in fact, as photography itself. Its beginnings date back to Poitevin (1855) and Pouncy (1859), but it failed at that time to secure favor. Its modern revival began with an exhibition of gum prints made by Demachy and Maskell, in London, 1894-5. A technical process which can thus spring into lusty life after forty years' disuse must have something worth while about it, and so events have proved. If we run over the names of the most famous pictorialists, whose work has placed photography among the fine arts, we will find the list to be largely made up of gum-bichromate enthusiasts. If we could bring together the fifty photographs which have brought the highest prices during the past ten years, we would find "gum" prints in the majority. Similarly, in professional portraiture, the men and women whose work brings the highest price depend largely on the individual print—in gum-bichromate. A man came to me the other day and said: "I am working in home portraiture among a good class of people and get ten dollars a print—platinum. They will give me twenty-five dollars a print for 'gums.' I must know about it." The instance is not exceptional. There is a photographer in Philadelphia today who asks \$180 per dozen for gum-bichromate prints, and gets his price. Only a few years ago he sold his portraits at from \$10 to \$25 per dozen.

Its Peculiarities There is, then, something peculiar and distinctive about the gum-bichromate print. Yes—it is different. In its best state it has an indefinable but unmistakable quality for



The Monastery
From a Gum Print by Walter Zimmerman



A Swiss Byway
From a Gum Print by Walter Zimmerman

which we may look in vain among other sorts of prints. It is suggestive, rather than definitive. It gives an interpretation rather than a more or less rigid presentment of the subject, and so on. Gum-bichromate printing is not a process for the lazy man, nor for the man who is content with the small print, nor for the man who glories in the clear, sharp photograph. A good gum print means care and patience. You have to make the picture from the plain piece of paper. It calls for bigness and space. One cannot imagine a pleasing 4 x 5 gum print; but in 8 x 10 or larger the qualities of the process are abundantly evident. Neither can one imagine a gum print of a printing-press. The method is not intended for such uses. But if the reader will take one of his small-camera negatives of a bit of woodland, water and sky, or a fairly well-modeled portrait, have the negative enlarged to 8 x 10 or thereabouts, and persevere until he gets a really good gum print of his subject from this enlarged negative, I have no doubt about his appreciation of the process and the print.

There exists a certain amount of prejudice against gum-bichromate printing.

A Revolution When not based on ignorance, this prejudice is usually the result of failure, due largely to the difficulties, tediousness and uncertainties of the process as hitherto practised and published. I hope that the reader will here put aside any prejudice he may have in this regard, and read what follows with an open mind. The methods which are herein described revolutionize gum-bichromate printing, and are new and original with the writer, rendering the process simple, practical and certain in result. Briefly put, the original features are: a radically new method of coating the paper, simpler and more certain than the old, which makes possible the obtaining of black or color prints perfect in gradation and coloring from a single coating, and which simplifies the difficulty of exposure enormously; a new and absurdly simple method of development, automatic in its character, which ensures similarity, regularity and perfection of result; with other minor improvements which help to the perfecting of the method. The net result of these improvements is that

gum-bichromate printing is now a really practical, workable, commercial, as well as artistic, method, available for amateurs and professionals alike—which it has not been in the past.

The impression heretofore has been that
Negatives “gum” work required a certain kind or quality of negative, to produce results, namely, a thin negative. This is not at all essential. Any negative which will make a print on *some* kind of printing-paper will make a print on gum-pigment paper. In fact, there is far greater latitude with “gum” than with any other printing medium, for the reason that not only the exposure, but also the coating itself, may be adapted to the negatives, or class of negatives, to be used. The rule, which is adapted to all other printing mediums, is this: For an extremely thin, underdeveloped negative, use a coating mixture or emulsion with plenty of pigment, and give as brief an exposure as will obtain a full print. The thicker pigment and the briefer exposure promote contrast in the print. For a harsh contrast negative such as, for instance, would be impossible with gaslight papers, make up an emulsion with less than the usual quantity of pigment—therefore a thin emulsion,—and expose for the dense parts of the negative, in other words, for the lights. The new methods, here described, make prints from such difficult negatives, both kinds, entirely practicable, particularly as to the heavy contrast negatives; for, with these, the excess of bichromate increases sensitiveness, and, in development, by the old process, the high-lights would wash off completely before the shadow gradations could be obtained. In the case of thin negatives and underprinting, the development period would be very brief, and the prints would probably begin to develop without blotters; and, in the case of contrast negatives, the soaking period might be two or three days in the blotters. But the wonderful thing with the blotter process is that, even after so long a soaking, there is still full texture remaining in the lights, provided that the directions as to use of blotters are carefully carried out. But I am anticipating in these details. Let us begin at the beginning.

**Pigments:
Colors**

In the detail of pigments or colors, each "gum" worker has his own preference between tube colors and powdered colors, and every beginner, after trying both, will come to his own decision or preference, after which he rarely changes. The "tube" colors are, of course, water-colors by various makers. Oil paints are not adapted to "gum" work, being insoluble in water. As it is inadvisable for a beginner to try multicolor work, commonly called "multiple gum," he will have no occasion to purchase more than two or three pigments to begin with. These should be, of course, those which he will be most likely to wish to use, probably lampblack and burnt umber. The powdered colors have the advantage of being much cheaper than tube colors, and are equally liked by many workers, including the writer, as compared with tube colors. Aniline colors, whether in tube or powder, should be avoided; first, as frequently lacking permanence; and, second, as being liable to sink into the paper.

**Coating
Tools**

These may be either brushes, by the old method, or an air-brush as part of the new method. Brush coating does not affect results according to the other parts of the new method in any way, and the air-brush is, therefore, not a necessity to it. The air-brush is suggested for greater perfection, technically, as entirely avoiding streaks and brush lines. If you purchase an air-brush, ask for one which will spray a "heavy" liquid; an atomizer will not answer the purpose, as it throws small blots, instead of the fine spray of the air-brush. To obtain the air-current or pressure, a foot-pump is also required. For the old method, the coating brush should be fine, soft, thick and flat, about three to four inches wide, according to whether you will coat large or small pieces of paper. The majority of workers use, in addition to the spreader or coating brush, a "blender." This is a somewhat expensive brush of badger (which is known, like the leopard, by its stripes), flat, and about four inches wide. This feathery brush smooths over the unevenness which sometimes results from the unskillful use of the spreader or coating brush. The blender is really not a necessity to any one who is expert at laying on colors evenly.

As the gum-bichromate-color is laid
Paper on paper which goes through several
 handlings and wettings, it is necessary
 for it to be very tough and strong, and to have a surface
 which will be unaffected by water. Experienced work-
 ers in "gum" generally prefer drawing-papers, such as
 the Whatman, Lalanne, or Michallet. I have found,
 however, that these papers change in size, slightly, after
 wetting, and that they are not so durable as the paper
 which I shall mention. In hunting for a paper which
 should fulfil all requirements, I found the "Angora"
 papers, made by the Whiting Paper Co., to be exactly
 what I wanted, as being tough and strong, having a sur-
 face unaffected by water, and, most important, not
 changing in size after soaking. The great advantage of
 the last item will be shown under the section "Register-
 ing." The same makers have also a two-ply paper,
 called Angora Card, useful where a strong and stiff sup-
 port is needed, and this card is also perfectly adapted to
 our process. As to price, the papers suggested cost but
 a fraction of the cost of the better makes of drawing-
 papers, and even the card is cheaper than the suitable
 drawing-papers. On the papers and card recommended,
 the prints will be fine in texture; while, if the reader
 prefer very rough effects, he will, naturally, purchase
 paper with that kind of surface.

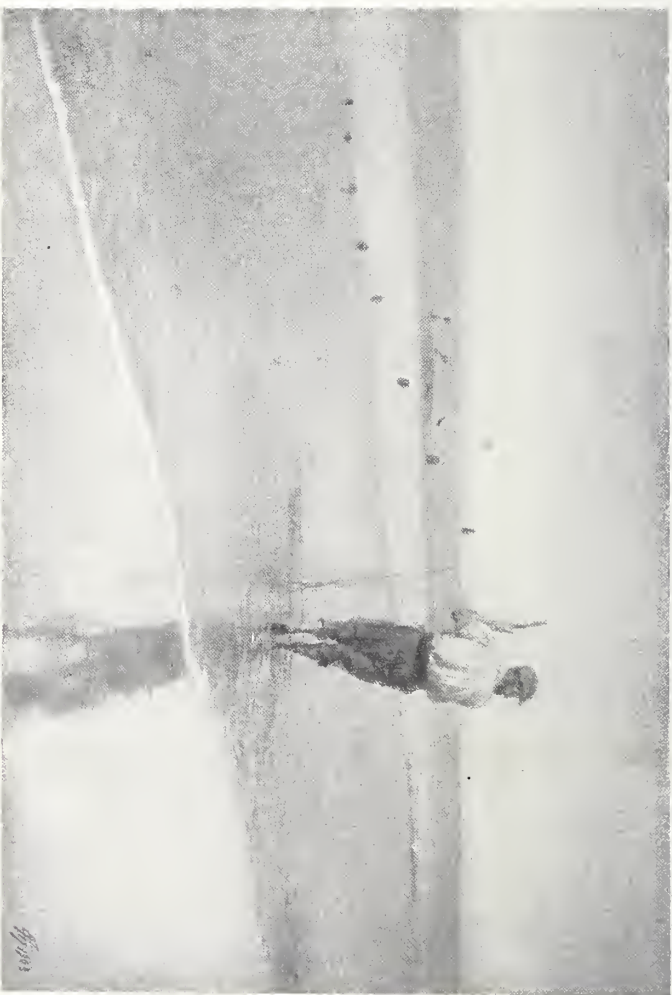
If the worker intends using the hand-
Coating Board brush, he will do his coating on a table
 which may be splattered with the color.
 If he intends using the air-brush, the paper should be
 placed vertically, e. g., pinned up against a wall or
 board, larger than an uncut sheet of paper. The requi-
 sites are that the surface on which the paper is fastened
 for coating be flat, smooth and dry.

The place for coating is the spare-room, with water,
 where you will do all of your work, and where a "mess"
 will not matter. As to light, the coating may be done in
 daylight, modified by translucent yellow shades; or, at
 night, with any artificial light except the electric arc.
 After coating, the sheets should be removed to the dark-
 est part of the room, for safety, in drying.

Thumb-tacks, or, better, glass push-pins, are needed



From a Gum Print by A. Gomez Gimeno



From a Gum Print by A. Gomez Gimeno

for fastening paper during coating. Trays for soaking (larger, of course, than the largest prints to be made) are needed, or a sink or bath-tub may be used, according to your opportunities. A mortar and pestle, capacity four to six ounces (glass will answer the purpose), for grinding the color. These most of my readers will have.

A pound of bichromate of potash,
Sensitizer saturated solution in water. The easy and safe way to prepare this is to put the whole pound of bichromate in a pint bottle, dark glass, and fill with water, refilling as used, until all of the crystals have been dissolved, which will not be for a year for a large user, or several years for the occasional worker.

A pound or some ounces of gum-arabic.
Gum This may be of ordinary quality; the "tear-drops" are simply a waste of money, unless waste gives you pleasure, I have used "siftings" with success, but do not recommend that, however. Do not have the gum powdered, as it dissolves better in pieces, large or small, than when ground, for, in the latter case,—and with sifting,—the gum packs. The proportions of gum and water are two of the former by weight, of course, to three of the latter. This makes a thick solution, which is desirable. The solution is made by suspending the gum, contained in a porous bag, such as a coffee or other rough muslin bag, in the measured quantity of water, in a wide-mouth bottle. Do not try to hurry the process by heating the water, which is said to be injurious to the gum. Let it dissolve as it will. The object of suspension is that the solution, which is heavier than water, falls. Of course, the gum and water may be ground together in a mortar, but the bag-suspension method is preferable. Drop in two or three drops of formaldehyde to every ounce of gum-arabic used, in order to prevent fermentation of the solution. When nearly dissolved, the process may be hastened by squeezing the bag, which is unnecessary information. When ready for use, it is better to keep the solution in a stoppered bottle, to obviate change in strength by evaporation. The worker who makes only a few gum prints, now and again, can vary the quantity to suit his needs, keeping the proportions as given.

For my system of absolute technical **Blotting-Paper** development, a quantity of first-class blotting-paper will be required. I have tried a number of makes, and prefer the "World" blotter, made by The Albemarle Paper Manufacturing Company. This is prepared expressly for photographic purposes, and I have found it at once the most serviceable and economical in use.

These will be according to what you intend doing in the way of "improving" prints by local development, touching out high-lights, clouds, etc. If such "improving" is regarded with horror as being "faking," you will, naturally, not purchase any such brushes. If you do buy them, they will be of various sizes and styles, hard to soft, but all small, for this purpose. To some workers, the manipulating brushes are everything; to others, including the writer, they are of slight importance.

A jet of water is often needed for clearing certain parts of the print, and this is best obtained by the use of a couple of feet of rubber hose with one end pushed over the spigot, the other end to be held in the hand and squeezed, if need be, for a strong, thin jet. A rosette, or spray, is also useful for a general clearing, but it must be used carefully, for, if the print be very soft, the jet will take nearly everything off from the paper. By the blotter development process, to be described, no manipulation of any kind is required, in cases where the negative contains the picture, and, therefore, no spraying.

You have now been informed as to the two solutions required—the gum and the sensitiser. Soaking for twenty-four hours will cause both to be properly dissolved, ready for use. Many formulæ have been published, all different; all, probably, unnecessary; and all, so far as I have seen them, wrong. The scientific principle governing the preparation of the mixture has not, so far as I know, been published. That principle is this: **Use just enough of the gum to hold the pigment together, and no more.** It is not a question as to a multiplicity of opinion regarding the correct proportions; the quantity of the gum is fixed as just stated; that of the bichromate

is, to some extent, a matter of preference. The old method, which I advise you to discard at once, is to take so much gum solution and so much bichromate solution, mix, and then pour so much of the combination into so much pigment. As the "so much" was a variable quantity, according to the instructor, the more one was instructed, the less he knew, all of the instruction being, probably, wrong. In addition, the very best workers often excuse themselves from stating their own formulæ.

Carrying out the principle stated, the method of mixing—and an extremely easy and simple one—is this: take of the pigment, from tube or powder, enough to heap on the point of a penknife-blade, more or less, according to the amount of work to be done. Then pour in, of the thick gum solution, a little more than the bulk of the pigment used. I know very well what the advanced worker will say as to this direction; but let him be good enough to try for himself, without prejudice. With the pestle, work together the pigment and the gum, in the mortar; if the gum takes up—that is, of course, in suspension—all the pigment, you are ready for the next step; if it does not, add a few drops of gum and repeat grinding. With all the pigment held in suspension by the gum solution, pour in four to six times as much of the saturated bichromate of potash solution as you have used of the gum solution. This proportion does not have to be by measurement, but by appearance. Mix these thoroughly, with the mortar, and your pigment is ready. If, however, you desire perfect results, or if you intend using the air-brush, the emulsion should be filtered through a coarsely woven muslin bag. The rather thick fluid requires assistance, in filtering, in the way of twisting the mouth of the bag until all is gently pushed out except any hard pieces, or lumps, held back by the filter. These lumps, even if small, would make marks on the paper, by brush coating; or with the air-brush, would clog the nozzle. If you wish to discuss the reason for the modification as to proportions of gum and sensitizer, let us say that a molecule of gum will hold a molecule of pigment, when the gum is hardened; also that the gum itself has no light sensitiveness; therefore, all gum that is used in

excess of the molecule for molecule is wasted. As a matter of fact, it is worse than wasted, as it retards the printing and development, and also holds the pigment further from the paper. The excess of gum is also the cause of "flaking," i. e., the soaking off of the mixture in patches. The whole story is therefore, "enough gum, and no more."

**Questions
Answered**

If the question be asked, why the proportion of bichromate is so greatly increased, the answer is, first, to produce a sufficiently thin coating to spread properly, with either brush or air-brush, and, second, to obtain a printing surface of known and rapid sensitiveness. The emulsion, as here set forth, will print, with translucent pigments, in the same time as platinum paper, which is several times quicker than the solio paper, or P. O. P., previously used as a test. This emulsion also gives a completely visible image, in all colors, and this visible image may be used as a guide, without any test or exposure meter. As a matter of fact, the novice should use colors first. In that way he learns the printing time of each negative in full sunlight, and should so mark it on the edge of the film. The remarks as to printing in black will come, more properly, under "Exposure."

Please understand that I am not "changing" the proportions of the ingredients; I am doing something more radical than that, by advising you to use the gum sparingly, and the sensitizer, the bichromate, somewhat ad libitum. There is this suggestion only as to the latter, that if you use too little, the mixture will be too thick to spread; and, if too much, it will be too watery. The four-to-six proportion of sensitizer to one of gum is about right for all purposes, and will give the desired "creamy" consistency for a smooth coating. Notice, also, that the increased sensitiveness of the emulsion caused by omission of useless gum means absolute technique in printing, as to line, gradation, etc. I realize that this very advantage will be, at first, regarded as a detriment by the impressionistic worker; but even he can benefit by it, knowing precisely what he is going to obtain, and having all opportunities for modification used heretofore, including the diffused negative, etc.



From a Gum Print by A. Gomez Gimeno



From a Gum Print by Basil Schon

There is nothing new to tell as to **Brush Coating** coating by hand with the brush. If however, the reader be a novice, it is done in this way: The mortar will serve as a convenient receptacle for the coating mixture; the flat, soft coating brush is dipped in, and worked about, to dislodge air-bubbles; it should remain in the mixture during the process, except when in use, in order to prevent the drying and hardening of the hair. The paper, cut to the size of the negative or print, should be tacked, by the four corners, to the coating-board. The push-pins or tacks should incline outward, so as not to interfere with the movement of the brush. The spreading of the emulsion is a matter of a little practice. The direction, sounding indefinite, is to drain from the brush all in excess of that which will freely coat the one piece or sheet. This means that, to coat a small piece, the brush will be well drained on the edge of the mortar, and for a large sheet the brush will be fuller. Again, and still indefinitely, the brush should not be full enough to leave the paper running, nor so dry as to require a second dipping—causing a pause—during the coating of the one sheet. In starting, it will be a far better rule to work for thinness of coating, therefore draining the brush fairly well on the edge. A piece or two of paper used or wasted will tell you more about this than several pages of explanation. You have only to remember that, if you put on too much, the coating will run; and, if too little, it will dry during the act of spreading, the latter being even worse than the former. With the brush, then, stripe the paper completely, either up and down or across, as you like, and then reverse. You may be told to hurry, but don't; just don't stop and go on again; or, if you stop, consider the piece of paper as wasted. Let each stroke of the brush slightly overlap the previous stroke, in order to cover the paper completely. The trick by which the use of the blender becomes unnecessary is this: In the finishing striping of the emulsion (not a second dip of the brush, and without pause, but merely to make the first striping smooth and even), twist the brush a trifle away from the overlap mentioned; that is, bear a very little harder on the

downward side, if you are working downward, than on the upper side of the brush. The evidence of striping is the great thing to avoid; as you may, perhaps, learn for yourself. If you use the blender, for finishing, pretend that the wet coated surface is covered with dust, instead of fluid, and move the blender quickly, up and down and side to side, as if dusting the paper. All of this is as old as the hills, and reads like roasted chestnuts to practical "gummists."

If your coating-board is large enough, it is better to leave the first piece undisturbed, and to tack on and coat a second, third or fourth piece, removing the first when the board is full. In this way, the first piece will be dry enough to handle, by the edges, without danger of running or smearing. If still wet enough to "run," after coating two or three other pieces, you will know that you tried to get too much of the mixture on the paper at one time, a very prevalent error with beginners. The coated pieces, as removed from the board, may be laid on a flat surface, say on spread newspapers, in a dark part of the room. The paper may be used for printing immediately after it becomes perfectly dry to the hand. If there is a drop of wet solution, it will injure your negative, for the bichromate is a strong reducer, dissolving the part of the negative that it touches, although quite harmless to it when dry.

This is a suitable place to tell you of another peculiarity of the coating mixture, or emulsion,—that it is sensitive to the light only when dry, and insensitive when wet. For this reason, when printing in daylight, the coated paper should be kept from the light (as in a box, or covered by a dark cloth) while the clearing or developing, as it is called, in water, may be done in full daylight—or sunlight, for that matter.

You should also know, if you do not, **A Warning** that bichromate of potash is injurious to the skin. It is, in fact, a poison, and is so labeled. You ought, therefore, to keep your hands as free from the solution as possible, and when you dip them in even a very weak solution, as in lifting the prints out of the clearing water, you should rinse them in clean water every time. There is a great difference as to per-

sonal sensitiveness, however. Some have to wear rubber gloves ; while others, with care, suffer no inconvenience, the latter being in the great majority.

**Air-Brush
Coating**

If you happen to be already familiar with the use of the air-brush, there is very little to tell you. If you are not, the dealer from whom you purchase this fine implement should advise you fully as to its use, and should also demonstrate it thoroughly to you. I repeat that you should ask for an air-brush suited for heavy liquids, although the emulsion advised is really neither thick nor thin. The filtering, already mentioned, is essential to the use of the air-brush, as clogging and spluttering is ruinous to good results. Pour all of the emulsion in the cup, and begin with a light air-pressure from your pump, increasing it, if you like, after becoming accustomed to the operation. Do not cut the paper for this kind of coating, but treat a *whole sheet* at a time. The implement should be held at least a foot away from the paper, and should be kept in constant motion, so that the spray may be lightly thrown over the surface as rapidly as possible, returning, without necessarily stopping, for a second, third or fourth spraying of the entire sheet. This means that you will suit yourself as to the quantity of mixture that you will apply to any sheet ; and also that the solution, in this feathery form, shall have completely dried, in one part of the paper, before you will have returned to it in the next round. As to evenness, you will, of course, on recoating, give greater attention to the parts which appear thinner ; but, even there, your hand must not stop ; for stopping means wetting the paper, with drops of fluid trickling down, and they mean streaks. If you have coated your paper properly, in this way, it will be so dry that it will be ready to cut and print immediately. As to thickness of coating, you may prefer to print with a light coating, and then, after clearing, give second, third or fourth coatings and printings, as many do ; or, you may prefer to do all with one coating and printing. It has been considered a great "stunt" to obtain a strong gum-bichromate print in lampblack in one heavy coating ; but, by this process, the thing is not only practicable, but comparatively easy.

Another feature with the air-brush is that you may stop coating as often as you please and go at it again, without impairing the result, this being totally impracticable with hand-brush coating. You will also get no streaks, in air-brush coating, unless you pause and wet the paper, so that it "runs," as above mentioned.

[Readers not familiar with the air-brush should send to O. C. Wold, 722 W. Madison St., Chicago, Ill., or to the Walkup Air-Brush Co., Rockford, Ill., for their booklets giving full information. EDITOR.]

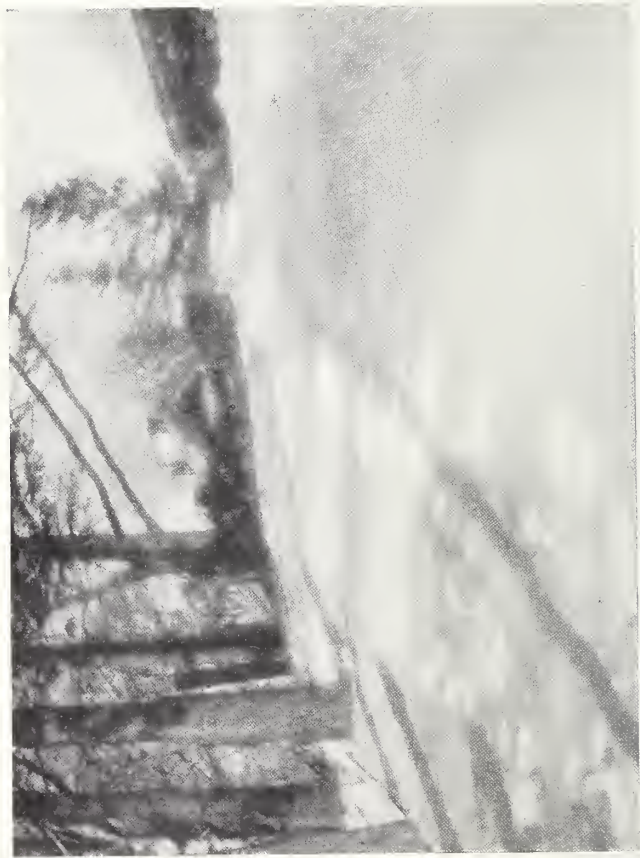
Papers in general use for gum-bi-
Registering chromate work do not, after soaking, dry to their exact original size. In order, therefore, to print upon a second coating, it has been necessary to register for the second printing in one of several ways: first, and simplest, by holding negative and paper up to the light, and to "neutralize" the dense parts of the negative with the thin parts of the print; second, by marking points at the edges of paper and negative, and adjusting those marks for subsequent printings; third, by preparing the negative as for carbon printing, i.e., by means of a lantern-slide binding around the edge of the negative.

All of these methods of registration are rendered unnecessary by the use of a paper which is adapted to this work in every way, including the unusual quality of shrinking to precisely the same size after soaking. This is the "Angora" paper of the Whiting Paper Company, already mentioned. This paper, when cut to the size of the negative, may be fitted in one corner of the printing frame, with the negative, and that corner so marked on the back. When subsequent printings are required, negative and paper are again held up so that paper and negative may again drop accurately into the same corner, giving, in this way, precise registering without a particle of trouble or risk of getting double lines. In practice these details will be found much simpler than the telling how to do them.

The reasons for requiring second printing are: First, where the first coating has been thin or insufficient; second, where too much pigment has soaked off; and third, for multicolor or multiple work.



From a Gum Print by A. Gomez Gimeno



Winter: By H. Oliver Bodine
(Exhibited at the Seventh American Salon)
Contact print from an untouched negative made with the Bodine Pictorial Lens: diaphragm
between $f/8$ and $f/11$

**Other
Advantages**

The method here suggested has other advantages, in addition to the saving of time and trouble. If, for instance, you wish to obtain diffusion or softness of outline by means of a sheet of celluloid between negative and paper, all three drop into the corner accurately; whereas it is almost impossible to fit all three by the holding-up method, on account of the danger of the smooth celluloid slipping after adjustment. Also, if one wishes to print on a heavy, opaque stock, he may use the Angora card in the same way. This method will not, of course, apply to printing in gum on platinum prints, nor to printing on onion-skin paper, to be referred to later; in which cases one of the old methods of registering is absolutely necessary.

This is, perhaps, as good a place as **Stale Paper** any to answer the question as to how long the prepared paper will "keep" after coating. Experience on this subject gives surprisingly different results; some workers saying that a few days is too much, and others stating that they have had perfect results when the paper had been laid aside for a month. Instead of answering in a word, the reader will understand best by illustration. If you will pour one tablespoonful of the gum and one of the bichromate into a glass, and mix by shaking, you will find, some hours later, that the mixture has changed from a bright red to a dark red, which, in a day or two, will become black; in other words, chemical decomposition has taken place. On the coated paper, if damp, this decomposition takes place, and the coating may, therefore, become unfit for use in a couple of days. If, however, the paper be perfectly dried, and put in a perfectly dry place, it is evident that it may be kept, with safety, for a comparatively long time. Another factor in keeping coated paper is exposure. It appears that slight exposure, which would have no appreciable effect on freshly coated and printed paper, fogs it when kept for days or weeks, owing to another peculiarity of the process, by which even a slight exposure starts chemical action or hardening, which is continuous. Slightly printed paper, laid aside for a day, will, when developed by washing, act

as if it were more strongly printed. The answer, therefore, to the question as to when coated paper becomes unfit for use is, that, if perfectly dry and entirely free from exposure, it will keep for a good many days. The one safe suggestion is, however, to use the paper as soon after coating as convenient, and not to coat more than is required for immediate use.

Onion-skin Paper One of the difficulties in gum-bichromate work has been that it has been practically impossible to get a proper coating on extremely thin paper; and, even if it should be successfully coated, it is almost impossible to clear or develop it. By the adoption of my methods you may use these papers with perfect safety, obtaining, with a little care, quite as good prints as on heavy paper.

Of course, it is almost impossible to coat onion-skin paper with the ordinary brush, on account of the paper wrinkling; but, with the air-brush, the spray seems so nearly dry that the paper remains almost flat during the operation. It is best to give thin paper a sufficiently heavy coating to make the prints by one operation, on account of the difficulty of registering, already mentioned.

By the ordinary method of development, it is difficult to get good results on thin paper, even when properly coated, on account of the material shriveling and curling while in soak. This may be entirely overcome by the blotter-development system, to be explained later.

Another "stunt" well worth trial with those who have a taste for unusual effects is to carry out the same idea in connection with Japanese tissue paper. This paper is unsized and porous, but, coated with the air-brush and developed with blotters, it is possible to make prints on this kind of paper. The object of using the paper is, of course, to get the margin and the deckel edge. This effect may be obtained by "masking" the paper during the coating,—that is, by covering all of the paper except a portion slightly smaller than the negative; and, in printing, to expose on a flat board, with the negative secured in the right place by means of push-pins. Accuracy of exposure is essential, as the unsized paper holds the pigment more firmly than a hard surface does.

If it be preferable to "size" the Japanese paper, this may be done either by soaking in the arrowroot solution, or by spraying it on with the air-brush.

The one requirement with all very thin papers is to avoid wetting. The spray from the air-brush must be light and feathery, and the hand must not pause an instant during the coating. To obtain a proper coat for one printing, it may be necessary to go over the surface lightly in this way a dozen times; but where quality and result are everything, and the labor involved comparatively nothing, the result must justify the effort.

It is in the exposure that the great **Exposure** proportion of failures, heretofore, has been caused. If underprinted, the gum-pigment comes off too fast for any control of the print; if overexposed, the period of soaking is so long that the operator becomes annoyed, and hastens the work by brushing, or scrubbing, as he calls it. The result of either is apt to be failure, and the gum-bichromate method has been abandoned for this reason more than for any other.

If the reader will adopt the course which I am recommending clear through, he should have no excuse for making any failures at all. You will find, when you read the section as to blotter development, that you have a greater latitude in exposure than in the tray-soaking method, and, for that reason the proportion of failures must be greatly reduced.

Let me remind you, at this point, that the emulsion already described is far more light-sensitive than that, with perhaps equal parts of gum and bichromate solutions, now in general use, by reason of the larger quantity of sensitizer replacing the superfluous gum. The printing time, or exposure, is, on account of this increased sensitiveness considerably reduced; and, as already mentioned, the exposure, with translucent pigments, is practically that of platinum paper. Moreover, you are now practically exposing for clear bichromate, plus color, and there is a plainly visible image, when properly printed, as a guide for correct printing, except with opaque pigment, which is the only remaining difficulty.

Take the clear colors first, and get accustomed to them,—for they will be useful to you later, even if you prefer to commence printing in lampblack at the outset. Black is the only exception, for, while the browns require nearly double the exposure of pure colors, the rule as to a visible image holds good with brown. I am mentioning a *visible* image, for the reason that this means a deeper exposure than previously adopted by the majority of workers, although really obtained in less time than with the old formulæ. Deeper printing means, of course, rendering everything contained in the negative, and therefore full detail and full gradation, features which have not been usual by the “gum” process. It is quite evident that, where full detail and full gradation are desired, the period of development must be so long as to be wearying under the old method; and this is the reason why “gum” prints usually show masses, rather than detail. Do not imagine from this that the writer is at all averse to printing for masses and for broad, sketchy effects,—quite to the contrary. You are merely being informed how you may get the straight effects obtained in any bought paper by the “gum” process.

**Getting
Similar
Prints**

You may, then, by this method, make prints fully equal to those on platinum as to technical quality, with all of the advantages of gum-pigment, in color, depth, variety, as well as very great economy, in addition. You may also, by my method only, get your one or two dozen prints, from one negative, precisely alike, if you so desire. To do this, coat sufficient paper for the full number needed, with allowance for possible failure,—as by any process; give absolutely uniform exposure, by the watch, in clear sunlight, to every print from the one negative; keep every print under cover to avoid fogging; do the printing of the batch in one operation, that is, without interruption; do the developing at one operation; and, when one print is ready to take out from the bath, all should be ready. If the work has been done, strictly, in this way, all the prints should be alike in every way. If you happen to be a professional photographer, and have made your “dozen” in the manner indicated, you should be able to obtain for

them not only the price of platinum prints, but several times as much. But don't, on any account, thank the writer for his information to you; for, although I have published much new information in regard to photographic matters, the result of a great deal of work on my part, freely given, I have yet to receive the first recognition for it;—and every one knows the effect of shock.

To resume, as to exposure, if you have any objection to exposing for visible image, you may test with platinum paper for all but browns and blacks, giving double for brown and three to four times for black, according to the thickness or opacity of coating. In fact, such a test, either with gum and clear pigment or with a strip of platinum, is what is necessary for printing in black. You will also be safe, in printing in black, for an average coat, to test, in the old-fashioned way, with solio paper, slightly overexposed, with the negative or an exposure meter.

If, after taking the print out of the frame, you have reason to think that you have underexposed it, you may, with perfect safety, replace it in the printing-frame, in the marked corner, and complete the exposure.

Of course, the word, "development,"

Development as applied to this process, is technically incorrect, because the process is simply that of soaking off the pigment, but producing no change whatever in the pigment itself. It is, however, the only word that has been found for this part of the process, and is therefore used here.

My story of development has practically been told in previous references to it, and is extremely simple, told in two words, "blotting-paper." You may be interested in knowing that, in making various experiments, the idea occurred to me to try blotter development. The friend at my side said that I would waste time and good blotting-paper; but the experiment was nevertheless made, and was absolutely successful.

As a matter of fact, any blotting-paper will do the work, but I recommend the "World Photo Finish Blotter," made by the Albemarle Paper Mfg. Co., as being the best, doing more work and giving better results than any other which I have tried. The ordinary commercial

blotting-paper goes to pieces in the soak, whereas this paper may be used several times.

The blotters are to be cut to size of the prints to be made. One blotter will develop two prints, back to back, both facing the blotting-paper. The blotter should be placed in a tray to soak, so that any air-bubbles may be dislodged,—for you know that air-bubbles must leave dark spots or patches in the print. Take a piece of glass, the size of negative, or a cleaned negative, first, and lay one wet blotter smoothly on it. In fact, the word smooth is needed all the way through the operation, and the gentle use of the squeegee, from time to time, is advisable, to flatten prints and blotters, and to remove any possible air-bubbles. Immerse the prints, separately, of course, and let each soak for a few minutes. If you have room enough in trays or sink, you may keep four prints going, coming back to the first, which will be ready at the time the fourth has been properly immersed. You will notice that I have several times mentioned "full" printing or exposure. If you have printed in this way, you will find, when you lift the prints from the soaking water, that only the surplus bichromate will run off. If however, you find that color also runs off, except possibly from the edges, that print has been underexposed for this process, and should be placed, separately, in a tray of water, to develop naturally, by the old method of letting the pigment fall, the paper being placed, of course, face down, floating on the water, with no air-bubbles.

You will, in this way, make up a pile of wet blotters and wet prints, finishing with a blotter, and then lay another piece of glass on top, to keep all in place. The pile, with glass top and bottom, is then to be placed in water, covering it, to allow the blotters to do their work. The blotting-paper being soft, and the printed surface comparatively hard, the unprinted part is first absorbed by the blotter, then the slightly printed parts, and so on. When the work of the blotter is complete and right, you will, on lifting the blotter, find a perfect negative print so absorbed, the coated paper showing a perfect positive; in other words, the fine "gum" prints that you have worked for have been made automatically, better than

you could make them by hand, by the old method. Also, the blotter being moist, rather than wet, every gradation of the negative will have been preserved in the print, from the highest lights to the deepest shadows.

You will by this time, readily recognize my reason for stating, several times, that prints by my method are to be made deeper than by the old method; in other words, everything contained in the negative, and every gradation, is to be reproduced in the print. All of this results, of course, in rare technical perfection, as compared with the "hit or miss" methods heretofore employed. Furthermore, instead of having repeated failures, in beginning gum-bichromate work, you may confidently expect, provided that you have carefully carried out all of these directions, to have excellent prints on your very first trial.

Time of Development There is only one thing that I cannot satisfactorily tell you at the outset, in regard to the soaking, and that is the time, since you may have printed so deeply as to require several days for the blotters to complete their work, or so lightly as to be ready in an hour or two. I mean that it takes a little practice to judge the visible image correctly. The better plan, until you have become accustomed to this work, is, after you have placed the pile of blotters and prints to soak in a place where they will be undisturbed, to attend to something else, your lunch or dinner, for instance; and then to examine for results.

Lift the pile, with both pieces of glass, carefully from the water and let it drain, by standing on one corner, for a few minutes. In other words, the blotters should be damp and not wet, for even a drop of water will injure a very soft print,—I mean one which may have been left to soak too long, but which may be saved, with care. In anticipation of that soft print to be saved, handle everything gently, in lifting off the top glass, the top blotter, etc. In anticipation of some or all of the prints not being ready to take out, reverse the order, by placing first the glass, then the first blotter, on your table. If the first print is not ready, replace it on the blotter, and so on, in reverse order, until you may

reach a print that is quite ready. In the matter of taking prints out from the pile, remember that the print will dry darker than it appears when wet. If you reach a print that is not only ready, but inclined to "run," it is better to lay it on a stretcher than to hang it up to dry. The blotter accompanying the finished print may be thrown into the washing tray, to clear, and use again, but you cannot, for the best work, use one blotter to make more than two or three pairs of prints. Also, as to using blotters a second time, remember that, if there is solution remaining in it, it will become stiff when dried in the light, and therefore not be available. In any case, do not let blotters which are to be used again be exposed to daylight, which will harden even the little gum and bichromate remaining in it.

The prints which are found to be undeveloped are to be replaced in the soaking water. In testing, instead of separating blotter and print, you may lift a corner, and replace both together, if unfinished. As to the time during which all prints may now be left to soak, you will be guided by their condition. If they appear to be nearly ready, but not quite, make it an hour or so. If the blotters have scarcely begun their work, you may safely leave them overnight, or even for a whole day, before repeating the examination. At the outset, you may have, in this way, to go over the pile of prints two or three times, in order to get all properly developed; but, as you become better acquainted with the work, you will know at the time of first putting them to soak just about how long a time it should be before you take them out again, and you will also, with a little practice, obtain far more uniformity in result. In the system described of getting the photographer's "dozen" uniform prints, the whole dozen will be ready at the same time that the first print is ready, with uniform coating and printing.

A Word to Pictorialists I know that there will be remarks, "not loud, but deep," as to divulging secrets by which any one and every one may obtain first-class prints by the gum-bichromate method; but, for my part, if I can do so much as to help even one embryo pictorialist to become a real pic-

torialist, I shall be amply repaid for my trouble in writing this for him. Besides, the secrets being mine, I have the privilege of doing as I please with them.

After Manipulation The advanced pictorialist may, again, complain that my method has nothing of interest for him. In that case, if he will try it faithfully, he will probably find that he is mistaken. He may also object that he cannot "manipulate" his prints by my process as well as by the old method. In other words, "it is hard to teach an old dog new tricks." Again, let him try, and he may be the first to be convinced. For, when the prints come out of the blotter bath, a singular condition exists. While they are firm in every part,—that is, if not touched,—they are also soft in every part, including the deep shadows. That is to say, the heaviest shadows may be modified with a light touch of the brush, where, under the old system, nothing but almost digging into the paper will sometimes remove the pigment from those parts. The experienced pictorialist has, therefore, by my methods a still more subtle medium to work on than he has hitherto possessed.

Another Advantage You will notice, for another thing, and less important, that the bichromate will have been better cleared from the print by the blotter method than by the old method (in case you are familiar with it), and that the finished prints will show clear color, or clear black, and white, clean paper in the highest lights. By this I am referring only to the bichromate, which, by the old method, remains on the paper, giving it a muddy effect. The pictorialist may mention that he does not want clear paper anywhere, but that he wants, and must have, a little pigment, to give a trace of "texture," even in the highest lights. And yet he may get precisely this effect by the method here described, and far more perfectly than by his own method, no matter how good, especially if he is using a thin negative to work with, by removing the prints just before they have entirely cleared at any point. He may also retain "texture" by allowing the pile of prints to drain for a longer time than three or four minutes, say fifteen minutes or more,

in which case some pigment will remain on highlights even after complete development, provided, of course, that they be carefully separated and handled.

Prints on Soft Paper

I will tell you of another peculiar feature, in connection with my process, and that is,—a seeming paradox until you have read this far,—to make fine “gum” prints on soft paper, even blotting-paper. In fact, you will have guessed it by this time. It is simple enough. Print the coated paper from a positive; let it soak, as directed; test, by a corner only; when ready to remove, let the pile drain fully a quarter of an hour, so that there be no water to run off; and you will have a negative on the print and a positive on the blotter. If carefully done, it will be a good one, with an extremely soft finish, perhaps suiting your artistic temperament better than anything else that you have made.

Gum on Platinum Prints

Printing in gum-bichromate on a platinum print is not a new thing, but it is extremely interesting, giving excellent results. Such prints have all of the fine detail and gradation of the platinum, with the softness in effect and richness of color of the gum-pigment. It is a very good plan to use discarded platinum prints, particularly those which are found to be too light or pale; so that, with the “gum” effect added, they become strong and rich, with colors not to be obtained in platinum. Black platinum prints may be coated with lamp-black, or with a mixture of blue and black, for marines, green-black for landscapes, and so on. Sepia-platinum prints may be coated with burnt umber, or with genuine sepia. It is not worth while to incur the expense of making platinum prints expressly for recoating in this way, since technical results with the gum-pigment alone fully equaling platinum effects may be made by any careful photographer, by following the rules given in this treatise. No directions as to this recoating on platinum are required, except to note that the stock used in platinum paper dries to a somewhat different size, and that corner registration is impracticable, except with small sizes; so that registering has to be done by one of the older methods. The use of a platinum print as a

base for gum printing will be mentioned again, in connection with the section on multicolor work.

**Two-toned
Prints**

Another method, producing very interesting results, is to make the second coating a lighter shade from the first, giving a two-toned effect. To do this, the first coating will be for depth and mass, and the second coating for color and detail. The first coat will be developed so that all lights will be white, in other words, for contrast, with little or no shading, and will be of a dark tint of the color scheme to be carried out; for instance, the color to be used for the finishing coat, but mixed with black for the first coating. This must not be regarded as color-work; simply as shading. The second coating will be in the unmixed color, and will be for full detail, with texture in the highlights. You will think of color combinations as quickly as you can read about them; but a couple of suggestions would be black and burnt umber for the first, and burnt umber alone for the second; yellow-black (olive) for the first, yellow for the second; blue-black for the first, blue for the second, and so on. Remember that work in two colors is usually offensive, but work in two tones is frequently pleasing. You will appreciate the reason for making the first print for mass and the second for detail when you examine your first two-toned print. This method was anticipated in the preceding section on recoating platinum prints as to varying the tint in the second coat.

**Multi-color
Three
Printings**

This is a branch of gum-pigment work which is not new, although recent. Mr. Coburn showed me his first picture in multi-color in 1902. Unless I am mistaken, he was the pioneer in the process. Since then many gum-enthusiasts here and abroad have done considerable work along this line, among whom the most successful in America, has probably been Mr. C. Yarnell Abbott, who has exhibited several excellent pictures in gum-multi-color. As a matter of fact, there is no branch of pictorial photography which is more intensely interesting; and, on the other hand, none which, as a rule, is more bitterly disappointing as to results. This usual disappointment occurs, partly, from the artist

having to work backward,—that is, to take off the colors that he will not require, instead of putting on the colors that he does require, in which respect he is at a great disadvantage as compared with the oil- or water-color artist. Also, and principally, because the amateur pictorialist is rarely equipped with a sufficient training in color values, and therefore, particularly with the handicap of working backward, cannot possibly get anything like the results that the trained brush artist obtains. In addition to this disadvantage, there is still another, that, even with the very best success in multi-color-gum work, obtained with effort and time almost equal to that of laying on color with the brush, the picture is scarcely better, in the eye of the laity, than a good chromo-lithograph. The best way to overcome a difficulty is to present it plainly, as I am doing. That some one, now working or yet to work on this process, will find a better method, is sincerely hoped by all who have a deep interest in the subject.

The Old Method

The old or three-coat method for multi-color is this: Coat, print and develop, successively, with each of the three primary colors. The usual order of coatings and colors is red, yellow, blue. After development, the color *not* required in any part or detail of the print is removed with a stiff brush. The color wanted in any place will therefore remain on the print. *Theoretically*, a combination of yellow and blue will give green, a combination of red and blue will give purple, and so on. As a matter of fact, however, they do not do so, largely on account of the impurity of the pigments obtainable in the shops. I am informed that a special series of absolutely pure primary colors is now on sale, but have not had the opportunity of trying them, nor of seeing the results from their use. Even these may fail, as the art of mixing colors is only for a trained artist, certainly not for me to try to tell you of, except to do my duty in pointing out the difficulties.

Still another difficulty in multi-color work is this: That, where, for the impression of full sunlight, the artist will want to have rich yellows, oranges and reds in the high-

lights, the photographic process naturally tends to leave blanks in those highlights; in other words, clear paper, and to give heavy reds and yellows in the shadows, where only a trace may be wanted. I shall propose to you a partial remedy for some of these objections in describing my two-print multi-color plan, in the next section.

I dislike to have to tell you of so many troubles in connection with color work, but there is still another. The great brush artists have discovered that the truest effects in color and shade are not obtained by *mixing* colors, but by showing the two parts to a color combination separately. I mean that the artist, particularly the sane impressionist, does not mix the red and yellow for orange, in giving the effect of bright sunlight, for instance; but he lays on his red and his yellow in little dots or dashes, giving, in that way, a far better effect in pure color than by mixing. Such an effect in photography is *almost* an impossibility, but not quite, as you will learn in the next section.

Advantage of My Method The method of coating, printing and development already described in this treatise is particularly adapted to the

improvement of multi-color work, for the reasons that the results are far more technically accurate, that the color in shadows may be removed with a light touch, instead of the scrubbing heretofore necessary, and that exact registration is more practicable.

Multi-Color—Two Printings All of my "color" work which has been even remotely successful has been done by a method which is totally different from the last described, and which is, I think, original. By this new method, a first print is made merely to show the locations for placing the various colors and tones. Such a print may be a pale platinum print, which will give a black foundation for the color, or, in other words, show "broken" colors. A method of obtaining much purer color effects is, instead of using a platinum print as a base, to make a gum-print in full detail with a mixture of equal parts of the three primary colors; result, *écru*. If you do this, you will be surprised how much purer the colors to be printed

upon this base will appear than you would imagine. In fact, the use of a neutral tint as a base is in vogue among eminent painters. and is therefore approved.

Should you prefer to print in color only without the neutral base, you may give a strong coating in bichromate of potash only, and print it, merely washing in water, to develop, and using that as a base upon which to lay the colors which you are to print. The alum or bisulphite-soda wash removes the precipitated bichromate subsequently.

Now, for the color print: dissolve some of each of the primaries in separate paint-saucers, with stiff brush for each. Apply the suitable color to each part of the picture to be made. You may get your sunlight effect as the painter does, in the way mentioned above, and your shadows by a minimum of the color naturally in that place, with an excess of blue; and gorgeous sky effects, if wanted, just as the colors would naturally occur. Remember that every part of the print is to have color, with no blanks, and that you make no attempt whatever to "paint,"—simply to apply, crudely, but observing forms and lines, and to let photography do the rest. Otherwise, you will be charged with making colored photographs, an artistic abomination. The result of all this, before printing, no matter how properly done, will look like the proverbial "thirty cents;" but, be patient.

Make up, and pour into the cup of the **Manipulation** air-brush, a mixture of four parts of bichromate solution to one of gum solution, both made as first described. Spray this mixture thoroughly on the daubed paper, and you are ready for the printing. It is better to have a number of prints prepared for one sensitizing, if you want to save time and trouble. Adjust the print to the corner of the negative, as with the first coat (for you cannot possibly register such a print by holding it against the light), and give the usual exposure; then development by the blotter system. The excellence of the result will surprise you; if you have made a bad color combination, it will surprise others also, but my part is to tell you how to get the technical result; in the matter of good

taste and artistic feeling, you alone are responsible. The one difficulty in the method is that the blue will print more deeply and firmly than the other colors, for actinic reasons, and you may, and probably will, have to reduce the blues somewhat, particularly at the edges, by the light touch of a soft brush. You have, at any rate, in the process just described, almost unlimited possibilities before you in the way of multi-color photography.

A remedy for defective color effect, **Variations** or an improvement to a fairly good effect, may be to give a third coat, with a thin wash of the prevailing tone or color of the picture, carrying out still further the thought of atmospheric condition that your picture is to tell.

A variation from applying wet color is to rub powdered color over the parts of the *écru* print, and then sensitize and print, as before.

A third variation, with doubtful results, and more trouble, is to make up three solutions, three primaries, with the gum and the bichromate, for spraying with the air-brush over the *écru* print. There are infinite possibilities in this method, but it appears to me to be adapted only to very large work, or for mass only, as the air-brush will not give definition or line, separating the colors.

If you do not have the air-brush, you may still use the last method for obtaining color prints, by making up three emulsions, three primaries, with the gum and the bichromate in each, applying these with three brushes, locally, as just described.

Glossing Prints One of the troubles in gum-bichromate work is that the pigment, which looks fresh and bright when removed from the wash or the blotters, presents a dead and lusterless appearance when dry, particularly in the heavily pigmented parts. In this respect, gum-bichromate work has been compared unfavorably with platinum. Platinum prints are noted for their velvety richness in the shadows; and "gum" prints, usually, for the deadness of their shadows. This may not only be entirely overcome, but the mark of favor given to the "gum" print,

even with deep shadows of little gradation, by means of "glossing" prints in which any "dead" effect is noticed. It is also true that my method, while obtaining far better prints, does away with the luster sometimes obtained; for, by the old method, with its excess of otherwise useless gum-arabic, some of it would, nevertheless, give a little tone to the dark parts. The remedy, far superior even to excessive gum in printing, is this: Select prints which need the treatment to be described, namely those with "dead" shadows; make up a mixture of equal parts of thick gum and saturated bichromate solutions, and, if the gum solution be not thick enough, then use more of the latter. Coat with the ordinary coating brush; the mixture should be thick enough to work somewhat stiffly. It will dry rather slowly, on account of the quantity of gum used. In printing, give a minimum exposure, namely for the bichromate only, there being no color to hold back the action of the light. Do not "develop" too quickly, but give an hour or so for the gum to harden somewhat. Develop by the tray or tank method. The unprinted bichromate, and the gum with it, will dissolve quickly, and the printed gum-bichromate will remain. It is somewhat difficult to judge as to when the print should be taken out of the wash; it is better to take it out too soon than too late, in case of doubt. The test, however, is to look at the print by reflected light. The moment that the printed parts, present a "raised" appearance, remove from the wash and hang up to dry. You will obtain, in this way, the effect of printing in oil.

There remains, I think, very little to be said. I have endeavored to tell the reader not only how to do the work for the best results, but have also carefully pointed out the difficulties, where they exist, for him to overcome. After he has obtained a set of fine prints, he will naturally know what to do with them; if his inclinations are artistic, as is to be presumed, he will probably exhibit his work. If there should be the appearance of bichromate remaining in the print, as will be the case, in any event, if he adopts the glossing method, the muddy yellow tone may be easily removed by a solution of

plain powdered alum and water. As the alum has no other chemical effect, he may use the solution as strong as he pleases. A still more effective salt for removal of bichromate is bisulphite of soda; but this salt will in time, or with a solution stronger than one per cent, have a tendency to break down the gum itself, which, carried to excess, will naturally destroy the print. If, in using blue pigment, usually manufactured, in these days, from coal-tar products, he finds the blue to be too strong in part or whole, he may reduce or remove it, with a weak muriatic acid solution, as for clearing platinum prints. In mounting "gum" prints there are no rules but to use the best taste possible, except, as a matter of personal taste, it appears to be better to show "gum" prints close framed, rather than with a mat or margin.

The writer, who gives the result of his work to the photographic world, will be glad to receive helpful comment or criticism from any of his readers who, he hopes, will find this little treatise to be useful.

WALTER ZIMMERMAN.

Notes and Comment

Several women photographers having written that the holiday rush of business prevents them from taking part in the Pictorial Competition for women only, announced in *The Photo Miniature* No. 112—to close December 31, I have decided to extend the time, and will close the competition January 31, 1911. For the benefit of all possible competitors, the original announcement is here repeated, with the date changed as above.

A COMPETITION FOR WOMEN ONLY

This month, the competition is organized on the "Votes for Women" idea, and is for women only. A check for ten dollars will be sent January 31 for the best picture received from a woman photographer—an example of her own work throughout. By the "best picture" I mean the cleverest or most pleasing bit of photography received. Any subject, any size larger than $3\frac{1}{4} \times 4\frac{1}{4}$ inches. Open to amateurs and professionals—women only. The winning print is to become the property of the editor of this magazine. All other prints will be returned, provided that sufficient postage is enclosed for this purpose when the prints are sent.



Just to keep the men folk awake while the women are working for the ten dollars offered in the first paragraph, I here announce a Special Competition—in which photographers of every class may take part—men, women, amateurs, professionals, employers and employes. Manufacturers and their employes are debarred. In this competition ten dollars will be awarded, February 28, 1911, for the most practical description of the use of the air-brush in photography, i.e., in negative or print manipulation. The air-brush is now quite extensively

employed by photographers, and some very clever work is being done with it. I want to know of these uses—hence this competition. If you know any one owning or using an air-brush, please bring this to his or her notice.



Sometime ago two Frenchmen aroused the world with an account of a wonderful lens which gave pictures or, to be exact, works of art, instead of the usual, commonplace photograph showing every hair on the dog and the name on the collar. So great was the interest shown in this royal road to success in photography that a book was written and published telling about this lens and its use. When the interest reached this country, Henry Smith, of Pinkham & Smith, Opticians, Boston, worked out and introduced a somewhat similar lens intended for pictorialists. This Smith lens was "taken up" by many prominent pictorial workers, such as Alvin Langdon Coburn, and I have seen a few remarkable examples of its performance in the exhibitions at the Photo-Secession Little Galleries.

Now comes H. Oliver Bodine, Keeper of the Photo Crafts Shops, Racine, Wisconsin, and a pictorialist whose work at the Salons entitles him to respect, with the Bodine Pictorial Lens, which is introduced to my readers by an example of its performance on another page of this issue. Unless I am mistaken, this illustration will create, in the hearts of many, a keen desire to possess one of these lenses. Let me confess that I want one myself.

The Bodine lens, as its name implies, is intended for the man or woman interested in pictorial photography, and is, of course, equally suited for portraiture, figure studies or landscape work. As compared with ordinary lenses, the Bodine lens is of unusual focal length in proportion to the size of the plate it is intended to cover, and so constructed that it retains the separation of the planes, atmosphere, etc., which other lenses usually obliterate. Used at its largest aperture, the Bodine lens gives an equal amount of diffusion throughout the picture image; but, by decreasing the size of the aperture to $f/16$, sharper definition can be obtained at will, so

that it can be used for work requiring the finest detail when this is desirable.

Despite all the talk about the "man behind the gun," there is room for a lens such as Mr. Bodine has designed, and it will undoubtedly prove itself a help in pictorial photography when used with intelligence and discrimination. The readers of THE PHOTO-MINIATURE, especially, will appreciate the power of such an objective, and for them this notice is given rather than to advertise the Bodine lens.

I am told that the Bodine lens will be ready next month, in four sizes, retailing at from twelve dollars to twenty-five dollars, these prices including a set of Bodine's new Ray Filters and Monochrome Lenses for viewing the subject. The facts that several hundred of these lenses have already been ordered in advance of their introduction, and that the makers put an absolute guarantee of "satisfaction or money refunded" behind them, should give them great popularity. Descriptive booklets and sample prints may be had from Mr. Bodine, addressed as above, by all who will mention this editorial note.



Those who have occasion to want to produce large numbers of development prints on short notice, for publicity, advertising or other purposes, should enquire as to the merits of the Photo Autopress, made by the G. M. Dye Printing Machine Company, Minneapolis, Minn., of which C. Frederick Potter, Jr., is president—formerly editor of "Western Camera Notes." The Photo Autopress is a remarkable machine, with a capacity of thirty prints per minute (1,800 prints per hour, and so on), which makes it, as far as I know, the fastest photographic printer on record. There is a booklet, of course, for those who ask for it.



Soon after 1911 begins, the G. Cramer Photo Paper Co. (Gustav Cramer, President), 6616 Cottage Grove Avenue, Chicago, Ill., will put on the market a new line of developing papers. In the announcement re-

ceived, it is claimed that these new products are the result of long and careful research and experiment, and that they will surpass other papers of this class. Until experience proves these claims, we are further advised that "First, last and all times, Cramer Reputation Backs Them," which guarantee is amply sufficient for the photographic world.



There is a beauty about carbon enlargements which separates them from all other kinds of enlarged pictures—but they are expensive. Chas. H. Loeber, Flatiron Building, New York, sends me a price-list for such enlargements which offers unusual price inducements. Readers who possess a particularly fine subject of which they would like an enlarged print, in permanent colors, will do well to get this price-list.



Despite all the books and formulas published, telling how to tone bromide and development prints, I get many complaints of failure from readers. All the methods seem to be too complicated for the average man, and there seems to be especial difficulty in securing clean (unstained) whites. As I have already pointed out, the simplest and surest way of toning such prints—green, blue, brown or red—is to use Schering's Vari-tone Tablets. These can be had from most dealers, are extremely moderate in price, and, if the makers' instructions are followed, are certain in results with brilliant tones and clear whites throughout. Full particulars from Schering & Glatz, 150 Maiden Lane, New York.



The winter months offer peculiar difficulties in exposure, because of the wide variation and deceptiveness of the light values. The simplest and best way to overcome these difficulties is to use an exposure meter which measures the actinic value of the light at the time of exposure, such as the Imperial Exposure Meter, imported by G. Gennert, New York and Chicago. This involves the modest expenditure of 50 cents, but means

a big saving in plates and results. Better get the Imperial.



Half-a-dozen clever tripod conveniences, including the famous Melley's Tripod Stay, which I have used for years, are described and illustrated in a leaflet which can be obtained for a post-card addressed to Burke & James, Chicago.



The Defender Photo Supply Co., Rochester, N. Y., announce a remarkably varied line of Bromide Papers, viz: Monox, Nos. 2, 3, 4, 5, 6 and 7. For enlargements or contact work these Monox papers will be found to fulfil every requirement in weight, surfaces and textures. Their manipulation is clearly and fully explained in *The Tipster*, a cleverly written pocket book which all users of bromide or development papers should possess.



For the latest booklets about the Wynne Infallible Exposure Meter, Autotype Carbon Tissues and Conveniences, the Ross Homocentric Lenses, and the Eagle Adjustable, Reversible Developing Tank, write to George Murphy, Inc., 57 East 9th Street, New York.



Photograms of the Year 1910. The colored plates and other improvements made in this year's "Photograms" has resulted in a largely increased demand for the book. At this writing the paper-covered edition is completely sold out, but a new shipment will be ready for delivery about the middle of January 1911. A few copies of the cloth-bound edition may yet be had.

Books and Prints

All books noticed in these pages may be obtained from the publishers of THE PHOTO-MINIATURE, and will be promptly forwarded, postpaid, to any address on receipt of the publishers' prices as here quoted.

New York. By Alvin Langdon Coburn. Twenty plates in photogravure; with a Foreword by H. G. Wells. New York: Brentano's, London: Duckworth & Co. 1910. \$6.

Those who were fortunate in seeing the Coburn prints exhibited at Buffalo, or the later one-man show at the Montross Gallery, New York, will welcome the publication of this handsome volume, as affording an opportunity to acquire a choice collection of Mr. Coburn's work at a nominal expenditure. Similarly, those who recall the delightful interpretations of London, which Mr. Coburn published a year ago, will want this latest volume in which he gives us his impressions of our own New York. The book is for those who know and love New York, as we know and love it who live and work in it all the year round. It portrays the Manhattan which Walt Whitman pictured in poetic vision, its streets, rivers, bridges, sky-scrapers and sky-lines by day and at night—the metropolis of the New World, surging with life and Titanic energies. Sometimes, indeed, the restless force which characterizes these impressions is a bit overwhelming, and one turns with a sense of relief to those plates which show the city in its more intimate and mystical moods, such as “The Singer Building at Twilight;” “Fifth Avenue, from the St. Regis.” In his choice of subjects, quite as much as in his treatment of them, Mr. Coburn displays a fine discrimination, and the collection will add to his reputation as a pictorialist. Needless to add that the *Foreword* by H. G. Wells is characteristic and

cleverly suggestive in its appreciation of the work it introduces.



The American Annual of Photography 1911. Volume XXV. Edited by * * *: New York, 1910. Paper covers, 75 cents; postage, 15 cents. Cloth bound, \$1.25; postage, 22 cents. General sales agents: George Murphy, Inc., New York. Dawbarn & Ward, Ltd., London.

The pressure of other work prevented my taking an active part in the preparation of *The American Annual* this year, so that I am free to comment on it as I find it. And my word about it is altogether in praise, with the single regret that the editor's modesty prevented him from putting his name under the title of the book, where it should be found. With the making of three volumes of the "Annual" behind me, I have no hesitation in saying that the 1911 "Annual" surpasses any one of my three in variety of interest and pictorial attractiveness. The articles deal with a rich variety of subjects, including many rarely written about; the pictures are exceptionally high in quality, and their reproduction leaves little ground for complaint. Among the contributors I notice many new names, and their work materially adds to the interest of the volume, despite the pleasure one gets from those who contribute so loyally year after year. Apart from the general excellence of the illustrations in black and white and colors, about two hundred in all, the frontispiece of the volume, a portrait printed on Argo Buff paper, is well worth the price of the book, and sets a new standard for makers of development papers.



The British Journal of Photography Almanac, 1911. Jubilee issue. Edited by George E. Brown, F.I.C. 1348 pages; paper covers, 50 cents; postage, 25 cents. Cloth bound, \$1; postage, 35 cents. London: Hy. Greenwood & Co. American agents: George Murphy Inc., New York.

Adhering to the plan laid out in last year's "Alma-

nalac" the editor of the 1911 volume devotes the largest part of his portly book to "The Epitome of Progress," wherein he cleverly condenses everything of photographic interest—apparatus and equipment, discoveries, processes, methods, important papers, lists of societies and publications, inventions, etc., introduced or published during 1910. This, as I have already said in past years, constitutes a monumental example of painstaking work of which the editor of the "Almanac" may well be proud. A feature of special and peculiar interest is the "Story of the B. J. Almanac from 1860 to 1910," with portraits of its editors, and a reproduction of the first "Almanac" from the only existing copy, preserved in the British Museum. The man or woman who misses the 1911 B. J. A. will miss what is emphatically the photographic book of the year.



The Wellcome Photographic Exposure Record and Diary 1911. U. S. A. Edition. 272 pp: pocket size, cloth wallet, with pencil, 50 cents. London and New York. Burroughs Wellcome & Co.

The Wellcome Exposure Record is one of those hardy annuals which the photographic public have learnt to expect at this season of the year, and one which has established a permanent position in their esteem by its remarkable utility and the compact mass of information it contains. "Age cannot wither nor custom stale its infinite variety," and each year its pages constitute a very faithful and up-to-date index and guide to the present state of the science and art of photography.

In this handy pocket volume, under the title of *Modern Photographic Methods*, the problems with which the photographer has to deal are explained. These include descriptions of the following processes—negative making, factorial, time, machine, tank or stand development, color, photography, bromide printing, gaslight printing, lantern-slide making, toning intensification, Ozobrome and Bromoil. The directions given are in every case the result of practical experience.

Ample provision is made for notes and memoranda, and the book is bound in neat pocket-book form, with

a pencil, automatic catch and wallet, so that it may conveniently become the photographer's companion on all excursions and obviates the necessity for any other note book.

In the latter portion of the Wellcome Photographic Exposure Record and Diary, the whole problem of correct exposure is dealt with in a very thorough and ingenious manner, all the facts and data which bear upon this important subject are carefully tabulated and correlated and arranged and then expressed in factors.

Inside the cover a special device called the Wellcome Exposure Calculator is fitted. This consists of a revolving circular disc, which, when certain factors, such as those for the plate and subject are known, will enable the correct exposure to be determined by a single turn of the scale. For those who adhere in practice to one particular brand of plate or film, a special slip for attachment to the disc may now be obtained, which still further simplifies the process. The attachment, which is supplied gratis by the publishers, permits the user to confine his attention to the three remaining factors only, and thus materially abbreviates his task.

Another new feature in this year's edition is the article on color photography in which a simple method of producing the chemical solutions required is suggested.



The Photography of Moving Objects and Hand Camera Work for advanced workers. By Adolphe Abrahams. 142 pages, profusely illustrated. Paper covers 50 cents. London: Dawbarn & Ward, Ltd. New York: Tennant & Ward. In this handy text book Mr. Abrahams has gathered together the illustrated papers he has contributed to various photographic journals during the past six years. His information has the merit of being drawn from actual experience, and one could not wish for a more interesting or more practical guide in the field covered by the volume. The English publishers advise that this work replaces Kilbey's "Hand Camera Photography" and "Advanced Hand Camera Work," both of which are out of print and will not be reprinted.



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EDITED BY JOHN A. TENNANT

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Will subscribers please note that, in dating this issue April, 1911, we have extended all subscriptions five months, to cover the November, 1910—March, 1911, issues not published.—PUBLISHERS

Beginners' Troubles

To the average man, woman or boy beginning in photography, picture-making with the camera looks so simple that he or she usually begins without a thought of learning how. The salesman from whom the camera is purchased, or a friend at home, runs glibly over the few little things which have to be done to "make the picture," and—there is the instruction book, with the camera, in its case. So the camera is loaded with films, and the beginner faces the joyous perplexities of the first exposures. Oh! the six or twelve thrills of that first spool of film. Some of the films turn out well, and others not so well; some are blanks, and some are overcrowded. Why? and Why? The salesman at the supply store is anxiously questioned, and he, poor fellow, does his best to fill the novice with technical details about over- and under-exposure, lens stops, shutter speeds and what not; out of which the beginner gets bewilderment and uncertainty. Apparently, it is not so easy as it reads in the advertisements, and certainty in getting good results depends on knowing how. To quote a once famous but almost forgotten saying, it is a condition and not a theory which confronts the beginner who begins in this way.

The trouble is ignorance. The only **Ignorance** real remedy is knowledge. The beginner's difficulties seem very real to him at the moment, but later he sees that they were, for the most part, only the natural result of adventuring upon an unknown sea without chart or compass. Like dreams his troubles vanished as he awakened into a little more knowledge. Even so, in this excursion together, we will see them disappear as we discuss them. Take, for example and encouragement, that commonest and most exasperating of beginners' troubles, the making of two exposures upon the same film or plate. How simply may it be avoided by remembering to wind on a new section of film, or to change the plate, immediately after each and every exposure. Get the habit. Success in photography, without trouble, means knowing what to do and system in the doing. Start right, know what to do, and do the next thing next.

It is impossible to make either a good **The Remedy** beginning or any real progress in photography without some sort of definite instruction, some source of reference in doubt or difficulty, some authority at hand to settle debatable points. Fortunately, these necessities are provided for in the abundant photographic literature available to English readers, and the beginning of wisdom in photography is in the gathering together of a few reliable handbooks. How shall the beginner know what to get? Let him choose according to his most pressing need, first the simplest books, and preferably such as deal with specific subjects, rather than the bigger, general handbooks.

Naturally, and I say it without any **Knowledge** desire to indulge in advertisement, the beginner will need many numbers of THE PHOTO-MINIATURE series. No other work is so obviously designed to help the beginner, or is so comprehensive in range of subjects, or so detailed in the treatment of its subjects. In these pages I will, of necessity, refer the reader very frequently to the different numbers of this series. Apart from these and similar "first books," the beginner is advised to subscribe for a photographic periodical (such as The Camera,

Camera Craft, Photo Era, American Photography, The Photographic Monthly, The Amateur Photographer, etc.), preferably one offering departments devoted to Print Criticisms, Answers to Queries, and the like helps. If the reader has a kodak, membership in the Kodak Correspondence School will prove a big help; or the joining of a local camera club may be even more useful in his development.

Makers' Booklets There is another source of helpful service often overlooked. I refer to the booklets furnished—without money or

price—by all manufacturers of photographic apparatus or materials, dealing with the use of their products. Although issued as advertisements, these booklets are authoritative in their information, and offer the surest guide to successful results with the commercial products which they advertise. Many of the beginner's troubles come from his unsystematic use of unknown materials; in the manufacturers' booklets we have the results of much systematic experimenting with these materials, digested and put in order for reference and use.

How Wisdom Works It is not too much to say that, with the helps already mentioned, the beginner may overcome ninety per cent of his troubles before they happen. The other ten per cent, which may really happen, will trouble him only once if he will follow the rule to find the reason for his every failure to get the result expected. A failure explained means success at the next attempt, a practical economy of time and materials, and, what is more important to the novice, a larger confidence and renewed interest in his work.

Already, then, I have outlined a way by which the beginner can avoid most of these petty troubles which make the first year in photography memorable by its disappointments and expenses. Make friends with the books. It is wiser to get the "know how" in this way, in the beginning, than to acquire it by the more tedious and discouraging way of practical experience.

Roughly classifying the troubles which beset the beginner, we may conveniently group them as arising from his ignorance of (1) the camera and equipment,

(2) choice of subjects and their treatment, (3) the problem of exposure, and (4) chemical manipulation. Let us take them up in this order.

Knowing One's Tools There is bound to be endless trouble and waste until the beginner is familiar with his camera, its capacities—what it will do, and its limitations—what it cannot do; its different parts and their uses. This applies with peculiar force to the lens and shutter as the essential feature of the equipment. But it is all very easy, and can be mastered with a little systematic effort.

Considering the camera first, apart from the lens and shutter, the best possible guide is the handbook which accompanies the camera when sold. There are so many kinds of cameras, differing in make-up, capacities and limitations, and doing the same thing in so many different ways, that no general instruction can be of much real use as a guide to your camera. And the first vital need is to know everything knowable about your camera. This is easily obtained by a careful study of the camera and its handbook, together with patient, persistent drill in its use, until every part and movement is familiarly known and understood.

Drill First take the handbook and go over the empty (unloaded) camera, identify each separate movement and its way of working. This done, drill yourself in the operations required to make a picture, beginning with the opening of the camera and passing in order through all the steps until the dummy exposure has been made, and a new section of film wound into place for the next exposure. Repeat this exercise, checking each successive step by the handbook, until you can confidently go through all the operations in their proper order, unconsciously, and without reference to the handbook. If a handbook to your camera is not available, take the camera to some one competent to explain its manipulation and get the vital knowledge from that source. This may seem a tedious exercise, but the faithful doing of it will prove a short road to after-success, and save the beginner from more expensive blunders than I care to detail here.

Next, study what the handbook says about the lens and shutter fitted to your camera, and learn how to handle them. Finally, drill yourself in the loading and unloading of the camera with its films or plates. When you are familiar with your camera in this way, you can profitably look at or read about other cameras, and see how they do the same or other things. In this acquiring of general information about hand cameras, a store of useful pointers will be found in THE PHOTO-MINIATURE No. 107, after reading which see Nos. 97, 99 and 77 for more advanced work.

Opening the Camera The first thing to learn about the hand camera is how to open it and extend the front for use, securely locking it in position. This is a very simple detail, but the neglect to properly secure the front when extended is responsible for some of the blurred, out-of-focus pictures which bother the beginner, caused by the loose front slipping slightly before exposure. Similarly, light-fogged films and shutters refusing to work when the bulb is pressed are often the result of carelessness in closing the camera. If the camera front has vertical and horizontal movements, see that it is properly centered before going further, and especially before attempting to close and lock the camera before use. The action of these movements is explained in the handbook.

Holding the Camera How to hold the camera is the next important detail. Whatever position and method is adopted, a little practice will be needed to attain to perfect steadiness and absence of movement during exposure. The position at which the camera is held will depend upon the style of finder attached to the camera (See P.-M. No. 107, page 500). Steadiness combined with elasticity of grasp is essential, and the habit of holding the breath during the instant of exposure. It should not be forgotten that the camera should be held level with the subject, not pointed up or down at it, whether the subject be a tall building or a clump of fern by the brookside. In many everyday subjects this will require the camera to be held level with the eyes or chin, or supported on the knee; but for the generality of subjects the waist level will be found most

convenient. This position enables one to hold the camera easily, without unusual exertion or liability of tremor. For this position, the box finder is preferable to the direct vision finder. Many of the beginner's first failures are due to lack of skill or care in the holding of the camera, and the detail is worth more consideration and drill than the average novice gives to its mastery. The fact that 1-5th or 1-10th second is as long a time as even an expert can hold a camera perfectly still without movement suggests that the more frequent use of a light tripod would save the novice from many annoying failures.

Now we must know something about
Finders finders. There are two kinds of finders in general use: (1) the little box finder fixed near the lens, which one looks down at, not into; and (2) the direct vision or upright finder, through which one looks directly at the subject. The first form is preferable for the beginner, as lending itself to greater ease and steadiness in holding the camera. In either case, the eye should be about nine inches from the finder. There is a certain kind of "brilliant" finder, giving a very bright image, which requires to be looked at from directly above, in order to get a correct view of what will be included on the film after exposure. In the use of any finder, see that the subject desired is placed well within the limits of the picture space. For example, in figure work, see that the head and feet do not too closely approach the top and bottom of the finder, and that there is rather more space at one side and above the figure than at the other side and below the figure. Attention to these details means freedom from such miseries as the figure half in and half out of the picture, the figure minus head or feet, the house apparently dropping out of the picture, and so on.

Focusing is a detail in which beginners
Focusing experience all sorts of troubles. If the camera is one of the "fixed focus" variety (by all odds the most desirable form for the beginner), the focusing problem is reduced to its simplest expression. Extend and lock the camera properly, and everything beyond a certain distance away will be sharply in focus in the picture. The only trouble that



A New Picture Book
Edgar A. Cohen



In Hori-Kiri Gardens, Tokio
Harold M. Bennett

can arise is the blurred, unsharp picture resulting from an attempt to photograph objects nearer the camera than the "minimum distance" allowed by the lens on your camera. This "minimum distance" varies with different lenses and different lens openings or stops. All possibility of trouble on this score can be avoided by knowing the distance, in feet, beyond which your lens will give everything sharply defined. The following table gives these facts for the lenses and lens openings or stops used in most "fixed focus" cameras.

Focal length of lens in inches	F/11	F/16	F/22
	Distance in feet beyond which all objects will be in focus		
3 inches	7	4	3
3½ inches	9	7	4
4 inches	12	8	6
4½ inches	15	11	8
5 inches	18	13	10

To use this table, find the focal length of your lens from the description given in the makers' catalogue, and copy the figures given by the table for your lens upon a strip of paper. Paste this strip on your camera, and learn by practice how to estimate the three distances, so that you can safely work by the figures on the strip when photographing. With a camera of this sort, it is also desirable to know something of the relative sizes of a familiar object in the negative when photographed at different distances from the camera. This can be learned only by experience with films or plates, and so should be left over until the beginner takes up actual work.

If, on the other hand, the camera
By Scale focuses by means of a little figured scale, then we must learn how to use this scale, which, in turn, depends upon knowing how to accurately estimate the distance of objects away from the camera. This ability to judge distances can be had only by experience, but there is no need to waste films or plates in getting the experience. The distances

required in general practice are 6, 8, 10, 15, 20, 25, 50 and 100 feet. A little drill—the repeated estimating and then measuring the distance away of any convenient object—will bring the facility. As we shall see later, the lens allows a certain amount of latitude, so that it is not necessary to be exact in this estimating of distances unless we are photographing objects nearer than, say, fifteen feet from the camera. Thus: if we are photographing with a lens of five and one-half inches focal length and stop $f/11$ (U. S. No. 8), we set the pointer at the twenty-foot mark on the focus scale, and everything in the picture will be in focus as far as objects from eleven feet away to infinity are concerned. This latitude, known as “depth of field” or “depth of definition,” varies according to the focal length of the lens and the stop in use, increasing as the focal length of the lens decreases, and further increasing as we diminish the size of the lens opening. It is desirable that the beginner should know the “depth of definition” available with the lens fitted to his camera, and how it varies according to the lens opening in use. The following table, which I take from the Wellcome “Exposure Record and Diary,” gives us these facts in convenient form. It shows the correct distance to set the pointer on the focus scale, for each stop in lenses of different focal length, in order to secure sharp definition in the subject from one-half the distance given in the table to infinity.

Focus of lens in inches. See catalogue description of your camera.	F/5.6 U. S. 2	F/8 U. S. 4	F/11 U. S. 8	F/16 U. S. 16	F/22 U. S. 32
3 inches . . .	13	9	7	4	3
3½ inches . .	17	13	9	7	4
4 inches . . .	24	17	12	8	6
4½ inches . .	30	21	15	10	7
5 inches . . .	36	26	18	13	9
5½ inches . .	45	32	22	16	11
6 inches . . .	54	38	27	19	14
6½ inches . .	62	44	31	22	16
7 inches . . .	72	50	36	25	18

For example: with a five-inch lens, working at $f/8$, we set the scale at twenty-five-feet, and everything in the subject from thirteen-feet away to infinity will be in sharp focus. As with the table previously mentioned, the reader may conveniently take the set of figures for his own lens, put them on a strip of paper, and glue this on the camera near the focus scale. Then, whatever stop you are using, you may set the pointer to the nearest distance on the scale, and know that everything farther away than half that distance will be in focus in the negative. Further information about focus scales and their use can be found in PHOTO-MINIATURE No. 107.

Screen-Focusing For the benefit of those who begin in photography with a stand camera and its focusing-screen, a word or two about the difficulties experienced in screen-focusing may be helpful. First, learn to look at the screen, not into or through it. Hold the eyes a few inches away from the screen, and the image (inverted) will be plainly seen. Next, rack the lens front in or out until the object you are photographing appears on the screen as fairly well defined. Now gently move the lens front back and forward until the whole of the subject, or any part desired, is seen to be sharply in focus. In a view including many parts or objects, the part or object of chief interest is generally most sharply focused. In a view with several planes, it is commonly advised to focus the middle distance sharply. In a portrait, the eyes are usually the point most sharply defined. If there is persistent difficulty in telling just when the maximum degree of sharp definition is reached, as the screen is moved back and forth, the trouble lies in defective vision, e. g. unsuspected astigmatism or other defect. The remedy here is to consult an oculist, and get his prescription for the kind of glasses which will obviate the difficulty.

The lens and shutter now claim our attention, in so far as lack of knowledge of them may add to the beginner's troubles. Reference to the handbook will tell you the sort of lens and shutter with which your camera is equipped. This is the first thing to know. Let us inquire into its significance.

The inexpensive camera (one costing less than ten dollars) is usually fitted with a simple achromatic meniscus lens with $f/16$ or $f/20$ as its largest opening, and an automatic shutter, i. e., one which opens the lens to make the exposure, and then resets itself (closing the lens) ready for the next exposure by a single movement. With such a camera and favorable conditions, one can produce as good photographs as any one could desire. Let there be no doubt about this, but let the emphasis go upon "favorable conditions." For the beginner with an outfit of this sort, the vital need is to realize its limitations, to understand clearly what it cannot do, and why it fails so often.

First we must recall the fact that it is impracticable to hold the camera in the hands, without slight or involuntary movement, longer than 1-10th, or, at most, 1-5th second. This fact, and the other fact that the largest opening in the lens fitted to the inexpensive camera is $f/16$ or $f/20$, means that, with such a camera held in the hands or against the body, it is useless to attempt to photograph any subject including movement except (1) the subject is distant from the camera and (2) around midday with the subject in bright sunlight. Nor can we photograph outdoors on a dull day after 3 P. M. save during the brightest summer months, and under exceptional circumstances in the locality or character of the subject. Similarly, we court failure in attempting to make snapshots of subjects including large masses of shadow or dark color, such as woodlands, the shaded side of a street, dark buildings near the camera, portraiture at home or on piazzas, and so on. These are practically impossible subjects with such a camera held in the hand. If it can be supported on a tripod or any similar support, so that a "bulb" or "time" exposure can be given, then all these impossible subjects become possible. The beginner who realizes these facts can save himself expense, trouble and disappointment. Fortunately, most beginners photograph during the brilliantly lighted summer days, and are attracted largely by subjects fairly well illuminated, so that the limitations of their first cameras

are not obtrusively evident. We shall learn more about the conditions favorable to successful exposure in later pages of this number.

Hand cameras fitted with a rectilinear lens working at $f/8$, and an exposure shutter marked to work at given speeds, offer a much wider range of possibilities than the simpler cameras already referred to. But it is equally necessary to know the limitations of the optical equipment.

Let us take a rectilinear lens with $f/8$ as its largest aperture, and an automatic shutter with marked speeds, such as is fitted to the 3A Kodak, and learn something about its capacities and use. First, we will look at the stops, or lens openings. These control the amount of light entering the lens and passing to the film within any given period of time. They also play an important part in the definition of the picture image, as we have seen in the table on page 262, but this feature we will pass over for the present. The larger the lens opening, the more light gets to the film; hence the speed of the lens is expressed by the size of its largest aperture or stop. Let us see what $f/8$ means.

Lens-makers mark or number stops by one of two systems. Of these systems, one is known as the F-value, or rational system, and the other is known as the Uniform System (U. S.),—this being an arbitrary method suggested some years ago by the Royal Photographic Society of great Britain, and later abandoned. It is still used, however, by some camera makers, all kodaks being marked by this U. S. system.

In the F-value system, each stop is marked with a figure which represents a definite relation between the diameter of the lens opening and the focal length of the lens. Thus, a stop marked $f/8$ is one in which the diameter of the opening is one-eighth of the focal length of the lens. In practice, these lens openings are so arranged that each succeeding opening, beginning with the largest, requires double the time or exposure required by the preceding (larger) aperture, or half the exposure required by the next following (smaller) aperture.

In the Uniform System $f/4$, an aperture the diameter of which is one-fourth of the focal length of the lens was adopted as the unit, and marked U. S. No. 1, the other apertures being so arranged and numbered that the exposure required to be doubled with each succeeding (higher) number. Thus, the U. S. system has the advantage that, if we know the exposure required by a subject with any given stop, we can at once tell what exposure to give that subject with any other stop.

The following table makes all these comparisons points clear, and enables us to compare F-value and U. S. numbers. As, however, we are considering a lens whose largest opening is $f/8$ (U. S. No. 4), we will take that opening as the unit in the third or "Relative Exposure" column.

F-values	U. S. Numbers	Relative exposures
F/4	U. S. 1	
F/5.6	U. S. 2	
F/8	U. S. 4	1
F/11	U. S. 8	2
F/16	U. S. 16	4
F/22	U. S. 32	8
F/32	U. S. 64	16
F/45	U. S. 128	32
F/64	U. S. 256	64

The value of this table as a means of avoiding troubles lies in its practical application. Thus, if your exposure table or meter tells you that your subject requires 1-25th second at $f/8$, and you change the stop to $f/11$, to get greater sharpness or "depth of definition," then column three of the table tells you to double the exposure and give 1-12th second, or the negative will be underexposed. At this point, you may wisely question your ability to give 1-12th second exposure in the hand without movement, and you decide to await more favorable light conditions or use a tripod. In the latter event, you are at liberty to use $f/16$ and give 1-5th second expo-



June
J. E. Watson



The Last Furrow
Edgar A. Bray

sure, gaining in sharpness and greater depth of definition, if this be desirable with the subject in hand. Similarly, this table, studied in connection with whatever exposure table or system you may use, will make plain the limitations of the camera which has $f/16$ or $f/20$ as its largest lens opening, since so small an aperture calls for the most favorable conditions of subject light, etc. So, too, the table shows the big advantages of the anastigmat lens working with an aperture which may be $f/4.5$, this giving a capacity for an exposure one-fourth of that required by the $f/8$ lens. For a complete understanding of lenses and their capacities, the reader is referred to *THE PHOTO-MINIATURE* No. 79, which treats the subject more fully than can be attempted here.

After the lens, we must know something about the exposure shutter and the troubles likely to arise in its operation.

Shutters First, consult the camera handbook and learn what type of shutter is attached to your camera—whether “regular,” i. e., requiring to be set for use before each and every exposure, or “automatic,” or everset, i. e., resetting itself automatically after each exposure, and so always ready for use. If of the former type, then the camera drill, already mentioned, must include setting the shutter before exposure, so that the beginner will remember the necessity of this operation in actual work. Some shutters combine both “automatic” and setting features—the first for “bulb” and “time” exposures and the latter for instantaneous or speed exposures. The combination has its advantages, but makes forethought very necessary, in order to avoid making what are intended to be speed exposures with “bulb” action set and without setting the shutter—which, of course, gives a regular bulb exposure. A little study of the shutter, with the handbook and drill, will prevent troubles of this sort.

Shutter speeds are, at first, a source of bewilderment and blunders to the beginner. A few shutters are guaranteed to give the speeds marked on them, but the majority are altogether unreliable in this respect and must be known by experience. As a rule, the average shutter set to the

1-100th second mark will give an actual exposure of about 1-40th second; if set at the 1-50th second mark, the exposure will still be the same, i. e., 1-40th second; if set at 1-25th second, the actual exposure will vary between 1-15th and 1-40th second, and the slower speeds, viz., 1-15th, 1-10th and 1-5th second, are usually slower than they are marked. These inaccuracies, however, do not seriously bother one, as one quickly learns to go by experience in judging the relative speeds of the shutter, regardless of the markings. Without doubt, however, these erroneous markings are responsible for much of the underexposure which mars the beginner's results until he has learned the wisdom of using the next size larger stop to that indicated for high-speed exposures. For example: If the exposure table says 1-50th second with $f/16$, to give this exposure with $f/11$ will cover any inaccuracy in the speed of the shutter marking and assure sufficient exposure to give a fully timed negative.

Shutter Drill

The commonest source of trouble with the shutter, however, is neglecting to see that the shutter is accurately set before pressing the bulb; for example: leaving the speed pointer at "time" or "bulb" or 1-5th second, when you need and think you are giving 1-25th second. There is no remedy for this forgetfulness except the formation of a habit by means of drill. Systematize the essential operations as soon as you are thoroughly familiar with the different parts of your equipment and their handling; write down the essential steps leading to the exposure on a card, and drill by the card until you can go through all the motions of taking a picture unconsciously, so that you can give your mind to the other important details of subject and exposure. This drilling may be a little tedious, but it will save you from endless troubles and useless waste of materials.

Loading and Unloading

Especially is it necessary in this camera drill to learn how to load and unload the camera. With roll-film cameras, care is needed to see that the end of the film spool marked "top" is properly placed; or the black paper backing will face the lens instead of the sensitive film, and we will later wonder why we get no pictures out of our six or twelve

exposures. A well-known form of box film camera is particularly troublesome in this detail. It is provided with a black cardboard apron, having a hole through which the number of the film may be seen. In spite of the clear directions of the instruction book, many beginners feed the black paper protecting the film behind this mask, instead of in front. The result is that they get a series of little pictures about half an inch across. But the blunder which wastes most of the beginner's early films is the neglect to wind on a new section of film after each exposure. This can be overcome by insisting, in camera drill, on turning the spool key after each "dummy" exposure until the habit is formed.

An Adapter Trouble A very similar source of trouble with the use of a film-pack in an adapter is the neglect to pull out the wooden slide of the adapter before beginning to use the film series. With the film-pack, too, one must learn to pull the paper tabs up and out with a perfectly straight pull, as the slightest zigzagging tears the sides of the tab and causes it to stick, thereby making further use of the pack impossible until one can remove it from the camera (in the darkroom or in a safe light) and get the refractory tag working smoothly again.

Comparatively few beginners use glass plates nowadays; but, for those who do, a few words about plates and plate-holders will not come amiss. There are almost as many different kinds of plate-holders as there are cameras, and the only way to avoid trouble in this matter is to take a couple of spoilt or waste plates and drill yourself in the use of your own plate-holders. First learn to clean the inside and outside of the holders with a soft, dustless duster before beginning to load them with plates. This will obviate after troubles from dust. Then learn to put the plates into the holder, with the sensitive coating uppermost, holding them lightly but firmly by the edges only, and never touching the coated surface with the fingers. Practise this until you can easily load six double holders with twelve plates in total darkness. See that they fit properly without projecting at any part, or binding, and that the slide comes over the face of the

plate without touching it. Learn, also, to insert the whole width of the slide at once when replacing it in the holder after exposure. A common blunder is to enter one corner of the slide. This opens the light trap of the slit and may result in a plate fogged at the top.

Another cause of fogged plates or films may be mentioned here. There is a groove or tongue or projecting strip at the back of all plate cameras, into or against which the plate-holder fits snugly when properly inserted. Unless this snug fitting is secured, light will enter between the holder and the camera and spoil the plate. Still another good rule for avoiding fogged plates is: Keep the slide in position, protecting the plate, until the moment before exposure. The practice of carrying the camera with the holder open ready for exposure is responsible for many veiled or fogged negatives, otherwise unexplainable.

**Different
Subjects**

The second group of troubles centers about the beginner's ignorance of the difference between subjects and the treatment they require. To the beginner all subjects look alike, but the sensitive film and lens and shutter tell a different story. So the novice has to learn that the white marble building in the sunlight, the park lake under the open sky, the little group of children playing under the trees, the old weather-beaten, ivy-covered church on the shaded side of the avenue, and the figure portrait on the steps, as he returns from his afternoon outdoors with the camera, all demand separate thought and individual treatment if he wants printable negatives. The study of any exposure system, such as THE PHOTO-MINIATURE, No. 105, or the Wellcome "Exposure Record," or any good exposure meter, will give the graphic facts about these differences in subjects, and until he knows and can recognize them the beginner is bound to have many failures. I do not here refer to differences between subjects as far as exposure is concerned (of which we will learn later), but of the differences which make subjects possible or impossible at any given time, or which require individual treatment. For example: the white marble building requires a quiet illumination, the park lake will give a better negative on

a cloudy day than under the broad sunlight, the group of children under the trees will probably be hopelessly underexposed unless a tripod is used and a longer exposure given than is possible with the camera held in the hand, the old church may need a brilliant but diffused illumination, and the portrait at the home doorstep may not be possible under the conditions and would better be abandoned. So, too, the colors of the subject have to be considered. A woodland scene with its large masses of green and shadow may not be possible for a "snap," even at the same time of day which is suitable for the landscape seen by turning the head. Similarly, an exposure upon a figure at ten feet away from the camera may mean under-exposure, at the same moment that a view of the landscape with the figure twenty-five feet away will be fully exposed. The bronze statue may be impossible, because of its color, when the white or gray marble figure may give a good negative. These examples might be multiplied indefinitely. If the beginner will study the illustrations on pages 411-412 of *THE PHOTO-MINIATURE*, No. 105, he will get the right grasp of this fruitful source of failure.

**Correct
Exposure**

All the troubles we have been discussing, so far, are vexatious enough in their different ways, but they must yield in importance to the question of correct exposure. They occur occasionally only, but the problem of how much time to give is one that crops out every time you prepare for a picture. If you could stand for a few minutes with me in the developing and printing department of a large stock-house, and could see the hundreds of dollars' worth of expensive films and plates ruined solely because of inaccurate exposure, you would realize how important this question is. Some dealers develop many hundreds of rolls of film a day during the outdoor season. Of these, scarcely ten per cent are timed just right, and probably fifty per cent are hopelessly under-exposed, the result of the cheerful habit of trying to make snapshots under all conditions of light. This trouble, like many of the others discussed, is due to lack of information. The instruction-books say to make snapshots in the sunlight. The average beginner gets that idea firmly

impressed on his mind and acts accordingly. But to him sunlight is sunlight, and he cannot understand why he should not get good pictures from snaps made at any hour when there is sunshine. Hence we see thousands of snap-shots made late in the afternoon, as they show by the long shadows stretching across the foreground. Over-exposure, in such an establishment as the one I have in mind, is seldom seen; and when it is, it is generally due to forgetting to change the shutter from "bulb" or "time" to "instantaneous." How to avoid under-exposure, then, is the most serious problem confronting the beginner with the hand camera.

Factors controlling exposure. (1) **Light** To solve the problem of exposure, it is necessary to learn something of the elements of the question. Of these the most important is the strength of the light; or, as it is called in photographic parlance, its actinic power. Direct sunlight is strongest in mid-summer at noon, and falls off rapidly in strength as the time is changed to earlier or later. It weakens as the year advances, until in December the noonday sun has only about half as much power to impress the plate as it had in June. Hence, to find the strength of the light, it is important to know the month, the time of day, and the latitude. A great many tables are available which give the comparative strength of light for all these conditions, but of these more later. The important thing for the beginner to realize is, that the exposure necessary for any given subject changes from hour to hour, and from month to month, because of the changing actinic power of the light.

(2) **Stop or Aperture** The second factor is the stop or aperture used in the lens. Even the cheapest cameras nowadays usually have some means of changing the stop so as to vary the amount of light which reaches the plate during a given time. Owing to the limitations of the cheap lenses used in them, however, some of these instruments cannot have a large enough stop or opening in the lens to give a proper exposure with a snap-shot, even in the brightest June sunshine. Thus the beginner is forced, until he buys a better camera, to accept under-exposure, or confine his



A Trans-Atlantic Liner Preparing to Depart: New York
J. E. Watson



Lower New York from the Hudson River
J. E. Watson

photographic work to bright days, between 10 A. M. and 2 P. M.

In its simplest terms, the question of stops may be stated thus: The larger the hole, the greater the amount of light which can pass through it in a given time. In practice this means that for snap-shots you must use your largest stop. The smaller apertures are for use with longer exposures outdoors in weak light, and for interiors taken by daylight. The numbering of stops and their significance has already been explained and need not be repeated here.

The third factor controlling exposure
 (3) **Speed of Plate or Film** is the speed, or light sensitiveness of the plate or film used. This quality varies greatly with different makes, but most films and the more popular brands of plates are "fast" enough to make good snap-shots under proper conditions. Within a few years, plates have been placed on the market which require only three-fourths, one-half or even one-third of the exposure needed for the older sorts. After you have learned to use the regular fast plates you can avail yourself of the extra speed of these widely advertised brands: but do not begin with them or you will find yourself in trouble, for they require expert handling. The film manufacturers, too, are yielding to the demand for more speed, and one of them is now selling a film thirty per cent faster than the regular, though the increased speed would hardly be noticed by the beginner. The point for a novice is to select one good, reliable make, and stick to it until he has learned just how much exposure to give under all conditions. Then you can use plates of other speeds intelligently by finding what relation their speed bears to the standard.

Of the influence of the subject on the
 (4) **Subject** exposure I can say but little here, because it is too big for a monograph, and because it is taken care of by the devices for determining the exposure soon to be discussed. You will quickly find, if you have not learned it from the instruction book, that some subjects require twice and others half as much exposure as average landscape views. The causes are readily understood. Generally speaking, blue light affects

the plate more than any other color. The more air there is between the lens and the subject, the more blue light is reflected from it. Hence the distance in your pictures is fully exposed or even over-exposed, whereas the full-length figure of a friend is under-timed. Near objects require much more exposure than those far away. Dark objects require much more time than light objects. You will consult the tables and the calculators and learn that the golden rule of photography is to expose for the shadows of the picture. Before you decide to expose at all, note with care the character of the subject, and find from the sources of information available whether the subject will allow you to get a properly timed picture with the light, stop, and plate which the nature of the day will permit you to use. Very often you will find that, on account of motion due to wind, you must use a rapid instantaneous exposure to get a clear picture. In such a case, make sure that your light is strong enough, your stop large enough, your plate fast enough, and your subject light enough. If not, do not make the exposure. Never give what you know will prove to be an under-exposure, for no developer can bring out what isn't on the plate. Nothing can take the place of what is the foundation of successful photography—correct exposure.

Slide-Rule Calculators

There are several devices for calculating the exposure, of which perhaps the simplest are those of the slide-rule type. These are all based on the same principles. In general, they have a table of light values which gives the actinic value of the light for different months and hours; a table of subjects; another of plates; and a list of stops; thus all four of the factors governing exposures are successively considered.

Difficulties in Judging the Light

The judging of the light is at first hard, but the following rules may clear up the trouble: (1) Intense sunlight is always characterized by intense shadow. (2) If the shadows become faint, owing to clouds having passed across the sun, give twice as much time. Watch the shadows on any day when the sky is full of clouds, and you will soon master this detail. (3) Cloudy-bright

light is distinguished by the general feeling of strong light, but objects cast no perceptible shadows. The whole sky is obscured by light clouds, which diffuse the sun's rays and reduce contrasts. (4) Since you must "expose for the shadows and develop for the high-lights," be sure to time more fully the more intense the light. Remember that a little too generous an exposure will always give a good negative, whereas slight under-exposure always gives a harsh, unpleasant result.

Judging the Subject The subject is often hard to classify. The basis, which you must get firmly in mind, is an average landscape. This

term means an ordinary view, with no important large object much nearer the camera than fifty feet. It includes trees, houses, fields, lawns, open street-scenes, with both sides well lighted, near views on open beaches—in fact, most of the pictures which are suitable for snap-shots. If we assign to average landscape an arbitrary value of 1, the other subjects, under the same conditions, may be classified as follows, the number in each case being the relative exposure as compared with an average landscape :

- $\frac{1}{16}$. Pure white clouds.
- $\frac{1}{8}$. Clouds of average color.
- $\frac{1}{4}$. Very dark storm-clouds.

Open views of sea and sky, with no near ships or yachts and no shore in the foreground. Extreme distance in panoramic landscape, such as mountains many miles away, on a clear day.

$\frac{1}{2}$. Open or panoramic landscape with no foreground,—that is, with nothing nearer the camera than one hundred feet. Views on open sea-beaches or the shores of lakes and rivers. Ships and yachts near enough to give a large image on the plate. Snow-scenes with no dark tree-trunks or branches nearer than thirty or forty feet. White buildings or painted buildings of average color, at fifty feet or more.

2. Landscapes in which the principal object (trees, buildings, and so forth) is within thirty or forty feet, so that its image nearly fills the plate, particularly dark-painted or red brick buildings, with one side in deep shadow. Landscapes with the foreground in shadow,

or with small, dark masses of foliage within thirty feet. Street-scenes with one side in shadow. Groups outdoors in the shade. Full-length pictures of people near enough to give an image almost the full size of the plate.

4. Landscapes with dark-colored or heavily-shaded foregrounds, or having any very near dark objects in which detail is required. Street-scenes with both sides in shadow or very near figures. Full-length portraits in the shade. Any large object within about fifteen feet.

6 to 8. Bust portraits in the shade, Large objects six or eight feet away.

16 to 48. Near views of dark color, not open to the sky. Wood-interiors.

So much for the two chief difficulties in using the calculators. With the other factors, plate and stop, I think you will have no trouble; but you will often be puzzled by finding that the meter calls for an exposure your shutter will not allow you to give. Suppose, for example, that you ought to give 1-100th second with stop U. S. 8, and your fastest shutter-speed is 1-50th second. Remembering that each size smaller stop admits only half as much light as the next size larger, you would, in such a case, use U. S. 16 and 1-50th second. Or, if you were to give 1-35th second with U. S. 8, and your nearest speed was 1-25th second, you could set the stop half-way between U. S. 8 and U. S. 16. If, on the contrary, you had to give 1-12th second on U. S. 8, and your slowest snap was 1-25th second, you could open to U. S. 4 and admit twice as much light. In such a case, the anastigmat lens is a great advantage, because it has so large an aperture, or stop, that it will let in more light than the cheaper lenses will. Thus it is often possible, with the largest stop and the slowest snap your shutter will make, to get full exposures early or late in the day. The anastigmat, however, is a luxury you can afford to wait for until you are no longer a beginner.

Many tables have been published as guides to exposure. The "Photo Beacon Tables" assign numbers to the four exposure-factors, and when these numbers are added

Other
Tables

their sum refers to a certain exposure. Many amateurs use this table with great satisfaction. Several of the photographic magazines publish each month a table of exposures for all ordinary daylight conditions outdoors. The Wellcome "Exposure Record" has not only a calculator, but gives, in addition, tables for interiors, for enlarging and copying, and for night-photography. The whole subject of exposure, moreover, is exhaustively discussed in the *THE PHOTO-MINIATURE* No. 105, to which the reader is referred.

There is still another device for determining what exposure to give—the actinometer. This instrument measures the actinic strength of the light, and from this actual test calculates the correct exposure. The advantage is that its range extends far beyond that of the calculators. Very early and very late in the day, when the light is changing rapidly, it is the only device which is quite reliable. The disadvantage is that it is rather difficult to understand. If, however, you take pains to master the details, it will give satisfaction under all circumstances.

There is one very simple actinometer combined with a slide-rule calculator, and adapted to use ordinary printing-out paper such as Solio. Most of them, however, are made like a watch. They are provided with discs of sensitive paper which may be exposed through a wedge-shaped opening. At one side of this opening is painted a tint and at the other side a second tint four times as dark as the first. To test the light, you expose a fresh surface of the sensitive paper and note the number of seconds it takes to turn just as dark as the standard tint, which is the deeper colored of the two. From this number of seconds (which is the actinometer-time), by means of the scales printed or stamped around the edge of the meter, you calculate the exposure. In using the instrument, you have to know (from a table furnished by the makers) the speed of the plate. The Wynne meter uses the numbers of the stops to denote the relative speeds of the plates; the Watkin's meter, the exposure-fractions. You set the scales of the instrument so that the stop you are to use comes opposite the plate-speed-number, and then opposite the actinometer-



Edward J. Davison

time you read the exposure in seconds or fractions of a second as the case may be.

Actinometer This sounds simple,—and it is, after
Troubles you have got over the first tribulations.

The greatest stumbling-block is the taking of the actinometer-time. Two easy rules, will, nevertheless, help you conquer the obstacles. The first is that you must hold the meter so that the same light falls on the meter as falls on the object to be photographed. The second is that you are to pay no attention to the *color* of the sensitive paper, but only to its *darkness*. A few trials will soon show that the *colors do not match*, but you can readily observe that the sensitive paper looks *lighter* or *darker* than the standard tint. If you have any difficulty, try holding the meter at arm's length and looking at it with half-closed eyes, when the trouble will vanish. If you remember the golden rule about exposing for the shadows, and judge each subject by its shadows, particularly those near the camera, the following hints will help you to tell what light to test: For all average subjects, such as landscapes, portraits and groups, make no allowance for the color of the subject, but test the sky light by letting the face of the meter point to the sky in such a way that the direct sunlight cannot fall on the paper. For open or panoramic landscape, seascapes, and other similar subjects, take the direct sunlight. For subjects with dark foregrounds or heavy masses of shadow, make the test in the shade of your own body. The tendency of the actinometer is to indicate times leaning to the side of over-exposure, and this must be counteracted by testing the best light rather than the worst. Then, too, you must apply the following corrections to the exposure indicated:

Subject	Divide exposure by
Sea and sky	10
Snow scenes, ships, etc.	4
Open landscapes, rivers and lakes	2

To illustrate, the meter calls for 1-22d second with stop U. S. 8 when the actinometer-time is six seconds in direct sunlight. If your subject is a seascape with yachts, you must divide 1-22d second by four and give

1-88th second at U. S. 8, or (more conveniently) 1-50th second at U. S. 11. Don't let the fact that your shutter isn't marked for the same fractions as the meter bother you; give the nearest exposure you can, and the latitude of the film will take care of the slight variation. Even if you think that the time indicated by the meter seems too great, you may be sure that you can give about half as long an exposure and still get a result which will not be enough under-exposed to make your picture bad; but if you give what the meter says (after you have made the actinometer-test as I advise above) you will make good pictures almost every time.

Correct exposure is the foundation of Development success in negative making, and the novice who has mastered the elements of exposure sufficiently to insist upon giving his subjects slight over-exposure, rather than under-exposure, will experience few, if any, troubles in development. The comparatively recent discovery that modifications in developers and development are practically useless as far as changing poor negatives into good ones is concerned, and that development should be and is an automatic process, has robbed the problem of its difficulties. Our discussion of it, therefore, will be brief. Learn to expose correctly, and then choose the method of development to suit your own convenience.

The Tank Method If you use roll films, the tank method offers the simplest and surest way to the largest percentage of good negatives. It also does away with the necessity of a darkroom, and all the evil odors and messiness therewith connected. A careful reading of *THE PHOTO-MINIATURE*, No. 84, will acquaint the reader with the advantages and procedure of this method, and a close following of the handbook accompanying the tank employed will ensure the best possible negative obtainable from every exposure worthy of the name. If the negatives are poor, the plain remedy is to give more attention to your exposures.

The tank system is also applicable to the flat films used in film-pack or other form and for plates, but with these it is necessary to provide a darkroom or safely lighted place where the plates or films may be removed

from their holders and placed in the tank. Apart from this, with the attendant risk of fogging the sensitive films in the transfer, the method has all the advantages which it offers in the development of roll films.

Tray Development Since, however, plates and flat films can be handled separately in development, and some beginners prefer to see the process of development going on before their eyes, a few notes on separate tray development may be helpful to the reader. Cleanliness and order are the prime essentials in avoiding development troubles.

First make sure that the tray, graduate, darkroom-light, and working space are clean and in order. Rinse out the tray with clean water. Do the same to the graduate, drain it well, and then mix the developer. If you are using chemicals which must be dissolved just before using, make sure that every particle of solid has dissolved and then filter the developer through a tuft of absorbent-cotton placed in a glass funnel. This ensures absolute cleanliness. Now exclude white light and unload a plate, shading it with your body from the direct rays of the darkroom lamp. Place the plate face (or dull side) up in the tray and flow the developer over it from the graduate. To do this well, you should hold the tray in one hand and the graduate in the other, and start pouring at one corner, while sliding the lip of the graduate along the edge of the tray until by the time it reaches the other corner all the developer has flowed evenly across the plate. If you use enough developer to fill the tray to a depth of three-eighths or one-half inch, and pour in this manner, you will surely avoid all streaks, air-bubbles, and other defects which may occur in developing.

Keep the tray moving gently so that the developer is constantly flowing across the plate; but be patient, and keep it out of the direct light from the ruby lamp. After a minute, you can examine it briefly by the strong light close to the lamp, but you should continue development in the subdued light. If you follow this rule, you will not fog the plate. Even the red light is not always quite free from rays which can act on the sensitive film, and the common habit of developing close

to the lamp is responsible for many failures. Provide abundant light, but don't work too near.

Examine the plate in the tray from time to time until you see that the details in the shadows (the white parts of the plate) are beginning to fill in or cloud over. Now lift the plate from the tray and look at the glass side while reflecting the light from it and you will see dark patches on the white and shiny surface. These dark spots are the high-lights of the negative and will be light in the print. For portraits and light-colored subjects, or those in which the contrasts are very great, you should stop development here. If you continue beyond the point where the highest lights show plainly on the glass side, you will develop so far that your print will lack detail in the lighter portions. Too long a period in the developer produces negatives which yield prints of the soot-and-whitewash order, that is, with heavy black shadows and detail—less whites. For landscapes and subjects of average contrasts you should continue development until all the high-lights and half-tones show plainly on the back. At this stage, the whole picture is pretty plain when viewed from the glass side; but, if you hold it up to the light and look *through* it, you will probably find that it is dull and flat, all the details seeming buried.

These rules are general, and must be checked by trial with the particular plate and developer in use, for some developers require a longer application than others. With metol, amidol, rodinal, and other quick-working agents, it is necessary to carry development farther than with pyro. In any case, after you have decided that the plate has been in long enough, do not fail to rinse it well under the tap before placing it in the fixing-bath to avoid stains.

Developers for Tray Work

In this connection, a word as to developers may not be amiss. Almost any developer may be used, but it is best to stick to the formula published by the maker of the plate or film. If you time fully, there is little choice among the different developing substances. There is, however, a special advantage in using an agent of the rapid class for snap-shot work, for

such a developer is more energetic in bringing out detail in the less-well-exposed portions, namely, the shadows. Metol, for example, will give good negatives from plates which have had only half as much time as is necessary to give the same result with pyro. Hence the great popularity of compound developers like metol-hydroquinone and pyro-metol. A great favorite of my own is metol-glycin: Hot water 20 ounces; sulphite of soda, anhydrous $\frac{1}{2}$ ounce; carbonate of soda, dry 1 ounce; glycin 120 grains; metol 60 grains. Dilute with an equal volume of water, for use. This is a rapid, clear-working solution, which produces negatives of excellent printing quality for almost any printing paper, and it is almost as good as metol alone for under-exposures.

Another developer which is of equal merit, with the added advantage that it is also perfect for gaslight and bromide papers, is a two-solution Edinol developer made up as follows: Prepare solution A: Edinol 90 grains; sodium sulphite, anhydrous, 1 ounce Av.; water to make 10 ounces. Solution B: Sodium carbonate, dry 1 ounce Av.; water to make 10 ounces. For use with plates or films, take equal parts of A and B and one or two parts of water.

Troubles Due to not Washing Before Fixing

So much for development, which has reduced to black metallic silver the bromide of silver in the film at all the points where light has acted, but the unaltered parts are still sensitive to white light and peculiarly liable to become stained. If a thin layer of developer is allowed to remain on the film, the oxygen of the air will turn the developer brown, and the gelatine-and-silver mixture of which the film is composed will at once become discolored. The precaution is not, to be sure, absolutely necessary with all developers, but results are invariably better if you take pains to wash the plate for a full minute under a gentle stream from the tap before you fix it. Thus you avoid a series of distressing troubles, some of which may not make their appearance for years. It is not pleasant to find a favorite negative ruined by stains which might have been avoided by the routine following of this plan.

A second reason for this rinse is that if a plate is transferred directly from a warm developer to a cold fixing bath the plate is likely to frill or to blister. If it is cooled first by the running water, there is much less chance of trouble. Only when all the solutions are of about the same temperature can perfect results be obtained with regularity. The use of ice in summer, or of warm water in winter, is worth all the trouble it may take. Try to keep all the baths and the water between 60° and 70° the year round, and you will be immune from many troubles.

Troubles in Fixing The fixing-bath is one of the most bothersome things in photography. Beginners seem to think that any strength will do, but this idea is a serious mistake. The hypo should be weighed and the water measured, and a strength for plates or films of one ounce of hypo to four or five ounces of water never exceeded. If the bath is too strong, it is almost sure to cause blisters all over the plate—a fault for which there is no remedy. Frilling, or separation of the film from the glass, is another serious defect caused by too strong a bath.

Temperature Not only must the fixing bath be made in the right proportions, but it must also be of the right temperature. A freshly-dissolved bath should never be used until it has come up to the temperature of the room. The best way to avoid the troubles due to variation in warmth is to be extravagant and purchase a genuine hard-rubber fixing-box with grooves. Such a tank will last a lifetime, and keep the bath always at the temperature of the room. In summer, if necessary, you can pack it in ice; and, in winter, set it in a pail of hot water. Don't get a glass tank or a cheap japanned metal one. The plates should be protected from white light until they are quite fixed. If you can't afford the rubber, be satisfied with one of the excellent black composition tanks; get a tank anyhow; but look out you don't overwork your bath. Hypo is very cheap, and an exhausted or discolored bath will stain your plates. Mix a new batch just as soon as the old one begins to work slowly. Never keep adding hypo to the old solution.

**Insufficient
Fixing**

The next point about fixing is, how long to fix. The safest rule is to leave the plates in the hypo just twice as long as it takes to remove all traces of the yellowish-white bromide of silver from the plate. It is, indeed, best not to examine the plates by white light until they have been in for about twenty minutes. The reason for this precaution is that until all the silver salts have been completely dissolved out of the gelatine they may be affected by light and cause stains. Often these stains do not appear until the negative has been exposed in printing. Then they come out as yellow or brown patches. Sometimes they may be bleached successfully in the following solution: Water, 20 ounces; sulphate of iron (use only the clear green crystals) 3 ounces; sulphuric acid, concentrated, 1 ounce; powdered alum, 1 ounce. At other times, the stain due to insufficient fixing or too old a bath may take the form of a deposit of metallic silver, having an iridescent or rainbow appearance. Occasionally this will rub off readily by swabbing with a wet tuft of absorbent cotton, but usually the plate has to be treated with Farmer's reducer (see PHOTO-MINIATURE, No. 74). In general, then, throw away your fixing-bath whenever it works very slowly, or shows any signs of causing such troubles as have been mentioned.

**Troubles in
Washing**

To avoid troubles after fixing has been properly done in a good bath, it is necessary to wash the plate very thoroughly. Once more I must advise apparent extravagance, for proper apparatus costs a little more. Some form of washing-box which will provide a thorough circulation of water is a real necessity for complete elimination of the hypo. Put the plates carefully into the grooves, and let a moderate stream of water run through the box for a full hour. This precaution will prevent most of the troubles due to insufficient washing, such as crystallization on the film, stains, and gradual fading of the image. In the case of films developed in the strip, it is not enough to let the film lie coiled up in a vessel into which water is flowing from above. I believe that half the troubles in film-negatives are due to the beginner's habit of half-washing them in the hand-bowl. The bath-

tub is the better fixture, and any one can wash a strip of film completely free from hypo in twenty minutes by the following device: Get a strip of board a little wider than the film and a few inches longer. Drive short nails into the sides, about two inches from the end, and arrange a piece of string so as to slip over the faucet. Now pin the film to the board at both ends, suspend under the faucet, and regulate the water so that it flows evenly down, covering the entire film. Wash both back and front. If you wish, you can improve the contrivance by nailing strips of wood to the edges of the board so that they project about an inch above its surface. These confine the water and ensure that no part of the film escapes its continual action.

For cut sizes of film, as in the popular

Flat Films film packs, a good plan is to snap each film on a plate of glass by means of rubber bands, and wash in the regular plate tank. A much more troublesome, though effective, method is to wash in twelve changes of water, letting them stay in each fresh trayful for five minutes; but you must take great care not to scratch the tender film with your nails, or with the corner or edge of another film. The wet films are difficult to handle at best, and much more prone than plates to suffer damage in all the steps of negative-making. If I were to use roll-film to any extent, I should certainly have at least one tray made long enough for a whole strip. Such a tray can be cheaply made of inch boards and lined with common table oil-cloth; and its use for fixing, if for nothing else, will do away with a host of difficulties.

Dirt in the Water After the hypo has been washed out, the film is often covered with dirt from the wash-water. Unless it is removed promptly, it will cause numerous defects. With plates, you should swab the whole surface, front and back, with a tuft of absorbent cotton wetted in clean water and pressed nearly dry. Buy the best grade in pound rolls, to save money and avoid the grit which often contaminates the cheap samples. No water is ever clean enough for you to omit this swabbing. You can, of course, tie a piece of flannel over the faucet and strain out most of

the dirt, but the swabbing has another important use in removing all the surface water. When the plate or film is set aside to dry, it should have no tear-drops on either side, for a little extra water in one spot is likely to cause a difference in density at that place.

Quick, even drying is of the utmost importance. To secure it, place the plates or films in a current of air in a place free from dust. In summer, on hot, humid days, don't hesitate to use a fan. If you enjoy the convenience of an electric fan, so much the better; but I have saved many a good negative by fanning it with a piece of card, to hasten drying of the little damp patches. In winter choose a moderately warm situation—not hot, for a high temperature causes the image to become too dense. Dirt in the form of dust is a grave source of danger. The wet gelatine catches every particle which touches it, and the result is often that what seemed a perfect negative comes out almost unprintable, on account of pin-holes.

When the beginner takes up the making of prints from his negatives, he enters upon a new field of interest, but one which has its own peculiar troubles. Negatives which before seemed fairly satisfactory suddenly develop all sorts of defects and shortcomings. Some give weak, flat prints, lacking vigor and contrast; others have altogether too much contrast, harsh lights and heavy shadows. The beginner learns that a negative must not only be pleasing to the eye, but must also have that indefinable virtue known as printing quality. This brings him face to face with the processes of intensification and reduction. Negatives which are weak and flat—lacking in contrast—from over-exposure or under-development can be strengthened by intensification, so that they will give more vigorous prints. Those which show too much contrast of light and shade can be softened and made less contrasty by reduction. There are many different formulas for intensification and reduction and different methods are employed according to the precise modification needed by the negative in hand. To deal with them here is impracticable. They are all

described in detail in THE PHOTO-MINIATURE No. 74, to which the reader is referred.

**A Good
Printer**

What makes a good printer? This depends very largely upon the printing process or kind of printing paper employed in making the prints. There are many kinds of printing papers, each having its own characteristic way of reproducing what is in the negative, and we must know something about these differences between one printing paper and another before we can get good prints from our negatives. When the novice knows the kind of negative required to give the best sort of a print with a certain kind of printing paper, then he can always be sure of good prints by trying to get that kind of a negative all the time and using that sort of printing paper. But, as his negatives are liable to differ in their general characteristics and their printing quality, it is desirable that the novice should be able to handle several kinds of printing paper, in order to get the best possible prints from his different negatives. In THE PHOTO-MINIATURE No. 108, the six most popular printing methods are described, and this the novice should get and read, together with PHOTO-MINIATURE No. 78, which tells of the different characteristics of the various printing papers.

**The Ideal
Negative**

There is such a thing as an ideal negative, one which will give good prints on many different kinds of papers. This ideal negative may be defined as one correctly (rather fully) exposed and neither under- nor over-developed, without stain or discoloration, full of detail in the shadows and the half-tones, with a certain crisp quality in the highest lights of the subject. The greatest fault with beginners is to force or prolong development in the hope of getting more detail in the shadows.

This results in a negative which will give rather hard prints, and, for this reason, the beginner must use a printing paper which will give him soft prints from hard negatives in such a case. Papers specially prepared to meet such requirements are found among the development or gaslight papers, and, contrariwise, there are development papers specially made to give contrasty or

rich prints from negatives in which the gradations are too soft or weak. It is because development papers offer the widest range of variety in this particular, meeting the needs of all kinds of negatives, that they are so deservedly popular at the present time. But a wide knowledge of all the other kinds of printing papers will show the reader that he can get very pleasing prints from many different sorts of negatives on other than development papers, if this be desired. For example, the carbon process is generally supposed to call for a fairly strong negative, that is, one with the gradations distinctly marked—a good negative, but by varying the strength of the sensitized solution used in the carbon process, carbon papers can be made to give pleasing prints from soft negatives. (See THE PHOTO-MINIATURE No. 86.) Because of the tendency to under-exposure mentioned above, the negatives which the beginner gets from those who do development for amateurs are apt to be soft and weak, simply because the commercial finisher does not push his negatives in development so far as the amateur is inclined to do. Hence, for the majority of negatives developed by commercial finishers, the novice will need paper which will emphasize the contrasts in his negatives. It may be that he will find this in one or another brand of collodion or gelatine print-out paper, or in one of the many self-toning papers in the market. For negatives which are inclined to be a little strong—that is, fully exposed and fully developed—the platinum process is well adapted to give pleasing prints. The end of it all is that the beginner must learn either to make his negatives suit the printing paper he prefers to use, or he must know how to fit the printing paper to the negative.

The Simplest Paper At first, I would suggest that he use the simplest possible paper, viz: a self-toning paper, which will give him fairly good results from the very wide variety of negatives. Or he could take up the use of development papers after getting some familiarity with the variety of brands offered, so that he can choose among these for the helping of his negatives. In THE PHOTO-MINIATURE No. 93, the reader will find full information about develop-

ment papers and their handling. Self-toning papers are so simple in their manipulation—requiring only to be printed, fixed and washed—that no handbook is needed in their use other than the brief instructions which accompany the paper.

Print-Out Papers

There are a few things about the use of print-out papers which may be noted with profit. Contrary to the common notion, print-out papers have little latitude and require a fairly good negative. No undertimed negative with dense high-lights and clear shadows is suitable for this paper any more than an overtuned, flat and dense negative, simply because you cannot force the printing for one part of the negative without overdoing it for another. A few simple precautions will help you to get satisfactory results. The first is to have the negative bone-dry and quite free from dust. The second is to handle the sensitive paper before and during printing with extreme care in very weak daylight, being sure not to touch the face or coated side with the hands. Third, the piece of felt, or whatever backing is used behind the paper in the printing frame, must be perfectly dry and of sufficient thickness to press the printing paper into firm contact with the negative. Thin negatives should be printed in the shade. Even poor negatives may be made to yield fairly good prints, if you shade, with a card kept in constant motion, the part or parts which print too quickly. Sometimes a negative which is denser in one part than another can be made to give a more harmonious print by directing the rays of the sun through a reading or focusing glass on the densest spots. When the print is examined in the printing frame, special care is needed that it does not slip ever so slightly on the negative, as this will result in a double image. Also, if part of the print is much exposed to daylight by frequent examination during printing, that part will be printed more darkly than the rest of the paper, to the ruination of the print. All through the making of prints on print-out paper, from the moment the paper is taken from its package until it reaches the fixing bath, extreme care is needed to avoid handling the face of the paper in any way, as the slightest touch of the finger will often

leave a mark which cannot be removed. For the rest, the instructions accompanying the particular brand of paper employed should be closely followed. The methods and formulas advised for different papers vary so much that no general instruction here could be of much use.

We have now touched upon most of the points in the making of a photograph where the beginner is likely to encounter trouble. On many of the subjects briefly mentioned, separate books might be given, to do the subject full justice, but sufficient has been provided to guide the novice out of his immediate difficulties. When the elementary stage has been passed, and the reader knows how to produce a fair percentage of satisfactory negatives and prints without undue waste of time and materials, he may safely be left to discover new fields of interest in the more advanced methods and processes of photography—technical and pictorial.

MALCOLM DEAN MILLER, M.D.

Notes and Comment

By one of those unfortunate slips which no man can explain, we gave the credit of the beautiful frontispiece in *The American Annual of Photography*, 1911, to Argo paper, whereas it was made upon *Buff Cyko*—which fact is plainly stated beneath the picture itself. We lament the blunder. The picture is notable as one of the best examples of the possibilities of development paper for artistic portraiture we have thus far seen, and it is only fair that the Ansco Company, who make *Cyko Buff*, should have the praise due to this remarkable product of its skill.



There has been so much said in comment on the claims made for the efficiency of the Multi-Speed shutter, as compared with the focal plane shutter, that the following editorial from the *British Journal of Photography* is worth reading. This editorial word is from Mr. George E. Brown, himself an expert in shutters and their use. The fact that what he says is based upon the experience of Mr. Adolphe Abrahams adds interest to his opinion.

We quote from the *British Journal*: It is interesting to see from an article in the *Photographic Monthly* that Mr. Adolphe Abrahams has been experimenting with the "Multi-Speed" shutter, and that he has obtained the same surprising effects that other workers have reported. He sums up his experiences by saying that "the focal-plane shutter is beaten in moderately rapid work, and hopelessly beaten in exceptionally rapid photography." It seems that the apparent high efficiency and high speed of the "Multi-Speed" shutter always surprise those who try it, but we doubt if the mystery is a difficult one to explain if we only remember the way in which the capabilities of the focal-plane shutter

have been exaggerated. There is no doubt whatever that the speeds possible with the focal-plane shutter have been greatly overrated. Some time ago we pointed out the conditions that must be fulfilled to attain a speed of one-thousandth of a second with this shutter, and showed that, even with an extremely narrow slit, such an exposure could be realized only with a blind moving at a rate that is almost incredible, considering the mechanism that is available. In diaphragm shutters, high speed of movement is more readily attained, especially when, as in the case with the "Multi-Speed," the movement is in one direction only and the driving spring is a powerful one. It is these two factors that give the "Multi-Speed" such an advantage over the ordinary diaphragm shutter, which has a to-and-fro movement of the shutter blades and driving springs of necessarily limited power. Then, again, in the matter of efficiency, the focal plane shutter has been overrated at high speeds. The smallest slit is necessary for the shortest exposures, and a one-eighth-inch slit at a distance of five-eighths of an inch from the plate—not an unusual distance—has an efficiency of only fifty per cent, with a lens working at $f/5$. We can increase this low efficiency by using a lens of smaller aperture, but, of course, such a procedure lessens the efficient absolute exposure; and so we lose, instead of gaining anything. If, however, we substitute a diaphragm shutter for the focal-plane one, we can increase both the efficiency and efficient exposure by simply using a shutter of large diameter, and so a "Multi-Speed" shutter of fair size relatively to the lens may, when working at a high speed, give just as much exposure to the plate as a focal-plane shutter working at a rather lower speed."



The Northern Photo Supply Company, of Minneapolis, advise that the continual increase of their business makes it necessary to enlarge their quarters, and that they have annexed the neighboring building. This addition gives them abundant room for further growth and the handling of their present business with much greater facility. The success of this company has been

built wholly upon the quality of their products and the service they have given their patrons. We recommend this firm as worthy of our readers' support, and suggest that a copy of the firm's catalogue should be kept at hand for reference.



There is a persistent note of improvement and growing attractiveness in the photographic catalogues and lists coming to our desk. The new catalogue just issued by G. Gennert, of New York and Chicago, is typical of this improvement. Encyclopedic in its completeness of detail, it gives the buyer every desirable fact about the photographic specialties, in apparatus and materials, handled by this old established house, with illustrations showing almost every item. Such a catalogue makes buying by mail a pleasure, and the reader who desires to be up-to-date in his information about the commercial side of photography should not overlook it. It is well arranged and beautifully printed, with a full index, giving instant reference to its contents.



How to Color Photographs and Lantern Slides: By Aniline Dyes, Water and Oil Colors, Crystoleum and other Processes, by Richard Penlake; 77 pages, illustrated, 50 cents. London, George Routledge & Sons; New York, Tennant & Ward.

This is a handy manual to the processes mentioned in the title above given. The chapter on crystoleum work will be welcome, as the only information, at present, obtainable in book form about this obsolete, but much inquired about, method of coloring. For the rest, the methods of coloring photographs are treated somewhat too briefly to ensure success, and it would have been better had the author confined himself to one or two methods, treating them with more detail and thoroughness.



While it is generally known by professionals and amateurs that enlargements can be made in the camera, by daylight, as well as by the commonly used artificial-

light methods, the ease and certainty of the daylight in the camera method are not yet sufficiently appreciated. If the reader will take the trouble to investigate the new Soldak camera, sold by G. Gennert, New York and Chicago, he will quickly grasp the advantages of this equipment for the making of enlargements by daylight. The Soldak is, as far as we know, the only complete daylight-enlargement equipment in the market. It is fitted with an anastigmat lens, kits for holding negatives of various sizes, and the necessary lateral and sliding motions for the centering of the subject and the focusing scale, which saves a great deal of time and ensures accuracy in manipulation. The Soldak sells at a very reasonable price, considering the quality of the lens equipment, or it may be had without a lens if desired. It comes in two sizes, one making enlargements from $3\frac{1}{4} \times 4\frac{1}{4}$ to 8×10 inches, and the other giving enlargements from 4×5 to 16×20 inches. The Sylvar lens furnished with the Soldak may be used for everyday hand-camera work and the camera can, of course, be employed for portraiture or copying, having ample bellows length and the square body requisite for these two purposes. We believe that if the convenience of the Soldak is once properly understood, its use will in many cases supplant the more roundabout artificial light methods now so generally employed.



Bodine's Pictorial Lens, introduced in our last issue, is now ready for those who want it. The descriptive folder will be sent to all who apply for it, and should be seen by those who are particularly interested in the improvement of their work from the pictorial viewpoint. Address Photo Crafts Shops, Racine, Wisconsin.



The Multi-Speed Junior is a new exposure shutter based upon the carefully developed principle of the regular Multi-Speed shutter, but intended for small cameras and much simpler in its mechanism and manipulation than the regular shutter. It is designed to give accurate and reliable speeds up to one-five-hundredth

of a second. Those who are looking for a new shutter, or buying a new camera equipment for the forthcoming season, should see the Multi-Speed Junior at their dealer's before going further.



Up-to-date business firms, whose customers are found among the educated classes of all nationalities, are now using Esperanto for their booklets and for announcements intended for general circulation. We notice that Burroughs, Wellcome & Co., 39 West 33d Street, New York, have just issued an illustrated booklet of information about their tabloids, written in Esperanto. A copy of this curiosity in trade literature can be obtained on request, addressed to Messrs. Burroughs, Wellcome & Co.



In order to meet the requirements of its business, the Defender Photo Supply Company, of Rochester, is erecting a new plant which will practically double its productive capacity. At present, the product of this firm is confined to photographic papers and photographic chemicals, as far as the Rochester plant is concerned. The Company also operates, in Philadelphia, an extensive plant for the manufacture of dry plates, and it is planned to bring this business to Rochester in the near future. All this gives gratifying evidence of the growth which is everywhere taking place in the photographic business. We congratulate the Defender Photo Supply Company upon its success.



Are you interested in the coloring of photographs and lantern slides? If you are, then you should know Mrs. M. K. Dunne, of the National Photo and Lantern Slide Color Company, 2021 Fifth Avenue, New York. Mrs. Dunne is a charming Southern woman, expert in her art, with a great big enthusiasm for the beauties of color in nature and American scenery. I thoroughly enjoyed my hour with her and, as one result of the interview, can advise readers to invest, say ten dollars, in the

Dunne Correspondence Course of Photograph Coloring and the necessary coloring outfit, as the simplest and surest way of getting a practical mastery of this special branch of work. For those who really want to know, this expenditure is abundantly worth while. The Dunne color outfits are sold by dealers everywhere in the United States, Canada and Great Britain, but Mrs. Dunne will gladly answer any inquiries about instruction, if those who write her will mention this magazine as an introduction.



Burke & James, of Chicago, announce that, on account of the growth and expansion of their business, they have reorganized the company, which will hereafter be styled Burke & James Inc., with a capital stock of \$1,000,000. The new corporation has taken over all the contracts and obligations of the old company, and is moving into the modern and commodious building just erected for its use at 240-252 Ontario Street, Chicago.

Messrs Burke & James have made a splendid record for themselves in the photographic trade by their enterprise and fair dealing. We wish them every success in their new beginning.



The Lens Part of Photography, by R. D. Gray; a Brief Discussion of the Principles Involved in the Practical Application of Lenses in Photography; 57 pages, with 8 half-tone illustrations and 30 diagrams. Price, 25 cents. For sale by dealers; trade sales agents, Tennant & Ward, New York.

Here we have a pocket-book of lens information prepared by a practical lens-maker with thirty years' experience behind him. Mr. Gray writes wholly from the viewpoint of the user of the lens and, apart from the plain matter-of-fact descriptions of lenses given throughout the book, he has taken particular pains to give those lens facts which are most often lacking in the selling specifications given by lens-makers in their catalogues. The value of such a book needs no urging, and I advise the reader to worry his dealer until he has secured a

copy. The little volume is poorly printed and bound, so that its appearance is against it. In spite of this, however, it is worth many times its price for those in search of real information about lenses. The chapter on "Shutter Efficiency," and the other chapter on "Photographing Tall Buildings without a Ladder," are notable for new information which cannot be had elsewhere, while the chapter on the optics of copying gives the common sense of this matter more clearly than any other text-book.



The Kodak Advertising Contest, 1911, with \$2,500 in cash prizes, is now "open for business." Without any doubt whatever, many readers of THE PHOTO-MINIATURE should take their places among the winners in these contests. Send for the circular of information to the Eastman Kodak Company, Rochester, N. Y., and ask for a copy of the Souvenir of the 1910 Contest, which will give you an idea of the kinds of pictures desired.



Because of the scarcity of helpful information about photographing among the Alps and under similar conditions, as in our own Far West, the paper published by Dr. C. Atkins Swan on "The Practical Side of Alpine Photography," in the February number of *The Photographic Journal* of London, possesses an exceptional interest. Doctor Swan, whose splendid work in this field is well known on the other side, sticks closely to the title of his paper, and gives all manner of useful information about little details which are likely to hinder the success of the Alpine photographer. Just to save myself a lot of possible trouble from what is written above, let me here state that, in order to obtain a copy of *The Photographic Journal* for February, 1911, the reader should obtain an international money-order for 36 cents, and send it to Harrison & Sons, 45 Pall Mall, London, S.W., England.





Who Passes ?

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EDITED BY JOHN A. TENNANT

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Platinum Printing

Not very long ago an enterprising advertiser, selling ever so many volumes of photographic instruction on the easy-payment plan, blistered the public prints with the alluring catchword: "Get it in the negative." The admonition was well considered and to the point—but sadly incomplete. Let me add the perfect word: **Get it in the print.** For, when all is said and done, the negative is only a means to the end, necessary, but intermediate, preliminary. The first intention, and the last end in all our photography, is the print. Read it again, this most significant of photographic facts. The thing aimed at, the real purpose of all we do in photography, is the print—the literal or pictorial record of what the eye saw. So, consider the subject ever so carefully, its composition and its illumination; get it in the negative by correct exposure and artful or automatic development, as you prefer; and then be very sure to get it all in the print, especially the more subtle parts of the subject which convey its sentiment or character to the eye and mind of the beholder.

I am impelled to emphasize this here by the conviction that far too many of our prints are not doing justice to our subjects or our negatives. Within the last few months, there have passed through my hands hundreds of prints sent by amateur and professional photographers in friendly competition. As far as the subjects and their treatment were concerned, these hundreds of prints were extremely interesting, but, considered as

prints, the only word which properly described them was the disagreeable word—unsatisfactory. To be sure, there were good prints here and there, but they were lost in the endless procession of weak, flat, foggy, harsh, contrasty, hard, commonplace and indifferent prints by which they were surrounded on every side. I was appalled, not dreaming that so low a standard of quality in photographic prints could be widespread at this late day. And yet they came from all parts of America, and from workers in widely different classes, animated by the single desire to send of their best. It is evident that a large number of today's workers in photography either do not know or have forgotten the qualities which differentiate photographic prints as good, bad and indifferent. And it is equally obvious that the standard of quality in photographic printing in America needs a mighty uplift. This, then, is the uplift: a book on platinum printing.

**Expert
Opinion**

Why platinum printing? Go into the leading portrait studios of any large city and ask what printing-paper they employ for the highest grade work. The answer will be: platinum paper. Go to any one of the famous pictorialists whose exhibition prints excite your envious admiration, and ask him what paper he uses in obtaining the superb qualities which make his prints so desirable. The reply, in most cases, will be: platinum paper. Go to the great reproduction firms which supply the wonderful copies of paintings and works of art bought by our libraries and print collectors, and ask them what printing papers they employ. The answer will be: silver, carbon and platinum, the last named being used for the best grade of small reproductions. Here we have the opinion of experts admittedly well qualified to judge as to the qualities desired in the best sort of photographic prints. Why do they all prefer platinum? The answer is not far to seek. In all photography there is nothing more beautiful, or more everlastingly permanent, or more completely satisfying to the cultivated eye, than the platinum print. Add to this that platinum printing is one of the simplest and most direct of all methods of photographic printing, and the opinion

of our experts has a vital interest to every intelligent photographer, amateur or professional. It also explains why platinum printing is chosen as the subject of this, our uplift number.

What is a platinum print? Simply a photographic print in which the picture image is composed of metallic platinum on a base of the purest of paper. The beauty of the platinum print arises from the fact that the distribution of metallic platinum throughout the image in an exceedingly fine state of division yields exquisitely graduated tones of black and gray or sepia, according to the variety of paper used, with a delicacy and richness of effect which cannot be equaled in any other sort of print. Further, the picture image is formed on the paper itself, rather than on a gelatine or other emulsion base, or on a clay-coated paper, as is the case with many other kinds of prints, so that we get whatever desirable quality of surface and texture the paper base may possess. The advantages of this latter feature will be best appreciated by a comparison of several platinum prints from the same negative made on different varieties of paper, such as smooth bond, medium-rough drawing-paper, water-color paper, vellum and Japan tissues. To the platinum worker who prepares his own papers such comparisons are a source of endless pleasure and profit, the differences in effect so obtainable being unbelievable save by actual test.

The permanence of the platinum print results from the fact that the picture image, being composed of metallic platinum held in or on the purest of paper, is indestructible and uninfluenced by the innumerable causes which may and do produce change and deterioration in prints made by all other photographic printing methods, with the single exception of pigment or carbon prints.

The simplicity and directness of platinum printing is apparent from a brief statement of the essential manipulations. The sensitized paper is exposed to daylight under a negative in a printing-frame, requiring about one-half the exposure time needed by print-out paper; it is then

immersed in a solution of oxalate of potash, the development of the picture image being completed in from three or four seconds to as many minutes, after which the print is passed through four baths of very dilute muriatic acid and washed for twenty minutes in running water. In practice, with half a dozen negatives and as many printing-frames, the developing and clearing solutions being ready at hand, a dozen prints can be made in thirty minutes or less.

But you must see a really good platinum print before you can appreciate wherein it differs in beauty and quality from other kinds of prints. You must try the process for yourself in order to realize its simplicity. And you must take my word for the absolute permanency of the platinum print, unless you care to put a print up where the sun and rain can beat on it for twenty years or so while you make personal observations of the result of the test.

Home-made Papers The preparation of platinum paper is not a very difficult, nor yet an altogether simple, process. Many large consumers, and not a few pictorial workers, make their own paper in large or small quantities, as required. In *THE PHOTO-MINIATURE* No. 96, *Leaves from an Amateur's Notebook*, Miss Stanbery gives explicit instructions on which the amateur who desires to try his hand may rely with confidence. Another reliable handbook which goes thoroughly into the details of its subject is Abney and Clark's "The Platinotype: Its Preparation and Manipulation." But this sort of work calls for a deeper knowledge of chemistry and more carefulness than the average man possesses, so that I do not advise the reader to attempt the making of his own platinum paper,—at least until he has mastered the peculiarities of the commercial papers in the market and knows what he is about. Hence, in these pages we will confine ourselves to the successful use of the commercial brands. As these give the best results when reasonably fresh, the reader is advised, where his dealer cannot supply, to obtain them from the makers direct. This is especially advisable in America where few dealers carry platinum papers in stock, because of the present small demand for these papers.

**Commercial
Papers**

There are perhaps half a dozen makers of platinum papers of one sort or another in the American and British markets, but probably eighty per cent of the platinum paper used here and in Great Britain is manufactured by Willis & Clements (The Platinotype Company), the Eastman Kodak Company, and Ilford Ltd. The products of this last-named firm are not obtainable in America, so far as my information goes. The Gevaert Company is another manufacturer whose platinum papers are not yet introduced on this side.

As sold in the stores, platinum papers are roughly divided into two classes, viz: Black and Sepia papers, giving black and sepia prints respectively, as their names imply. Separately, the different varieties are described by trade names according to their different weights, thicknesses, surfaces, textures, and other characteristics of the paper stock. Thus Willis & Clements (The Platinotype Company) offer fifteen varieties, while the Eastman platinum papers include eleven varieties, both makers offering papers on white and buff-colored stock. Ilford Ltd. list only two varieties, rough and smooth, in different weights, while the Gevaert Company announces eleven varieties, including papers coated on Japanese raw stock. Since the interested reader will naturally seek full information about these products from the respective manufacturers, I need not burden these pages with a detailed description of them. It is always advised when first using any special brand of paper, to use the formulæ supplied by the makers. Modifications should come afterwards.

Do we require a special sort of negative for platinum printing? No. A good negative, which will yield a desirable print by any other printing method, will give a still more desirable print on platinum paper. At the same time it is true, in platinum as in other printing methods, that each worker will have his own notion of the kind of negative he or she needs, to get just the qualities desired in the print. The results obtainable from a negative, also, will vary very considerably according to the variety of paper used, the range of effects so ob-

tainable being remarkably wide. For this reason, the beginner in platinum printing, when he has once mastered the handling of a single variety, is urged to try all the other kinds commercially available in order to fully appreciate the wonderful possibilities of the process. For the rest, it may be said that platinum printing is not favorable to poor or indifferent negatives.

**The Best
Negative**

We must, therefore, put aside the idea that the platinum process requires any one special kind of negative. A clean, bright negative almost, but not quite, clear glass in the shadows, is the ideal for those who want brilliant prints. It need not, in fact, should not, be denser than one which prints perfectly on gelatine print-out paper. From a negative such as this, the finest prints will have the characteristic "gleam" and pearly half-tones peculiar to the platinum process; but the variety of platinum papers on the market provides the means of working from negatives which fall short to a greater or less extent of this ideal quality. Thus the slightly rough papers call for a distinctly softer negative than the smoother papers. And, as we shall see directly, the development can be adjusted—and that, in a very certain way—to help the negative. To disabuse the reader's mind of any necessity for a dense, vigorous negative, I may remind him that the magnificent landscapes by the late Horsley Hinton were all printed in platinum. Mr. Hinton's method, as described by himself in *THE PHOTO-MINIATURE* No. 59 (now out of print), was to hinge the negative to a drawing-board on which the platinum paper was pinned, and (in carrying out local shading, etc.) to be guided by the negative image seen against the sensitive paper. Obviously, a negative which allows of this is quite on the thin side. Mr. Hinton used for this exhibition work a rough, heavy variety of paper, which, as I have said, calls for a negative without strong contrasts.

**Choice of
Effects**

The platinum process is preëminent in giving prints of a neutral black tone. The phrase poorly describes the gleaming character of a platinum print at its best, but let it pass. In the early days of the process, black was the



Portrait Study
By Charles H. Davis



The Love-letter
Copyrighted by Charles H. Davis

only description of print obtainable on the paper, which was welcomed, for that very reason, as a variety from the warm purple or brown of albumen or silver prints. In surface, too, it was a change: the fine matt or rough natural surface of the paper was accepted as the most artistic of any, a view still held by many pictorial workers. Yet, in the details both of color and surface, the process has progressed. Prints from warm black to rich sepia may be obtained on the "black" paper; but the special "sepia" papers afford results in the latter color which are free from certain minor defects observable in those produced on the "black" papers; whilst other tones, such as red, green and blue of the most vivid hues, can be obtained by simple toning methods. In this respect, platinum papers—though seen at their best in the results which are obtained in the simplest way—respond to every reasonable requirement in the way of variety of effect.

What the Process Is Chemically, platinum printing need not trouble us much: that is chiefly for the maker. We should, however, understand in what the process consists, for without a little knowledge one cannot work intelligently. The sensitive material in the paper is a salt of iron—essentially ferric oxalate. Exposed to light, it becomes "reduced" to the ferrous state—ferrous oxalate. Now ferrous salts differ from ferric salts in that they reduce or deposit black metallic platinum from platinum salts. As the sensitive platinum papers contain platinum salt, it may be thought that this change goes on in the printing-frame. It does not—for the reason that ferrous oxalate (the product of exposure to light) is practically insoluble. Before it can act to the full, it must be brought into solution, and this is done with a solution of oxalate of potash, which is the so-called "developer" of the platinum print. It is not a developer in the same sense that pyro or metol is a developer for plates or films. What it does is to let loose the ferrous oxalate upon the platinum salt. The only remaining part of the process is to rid the paper of ferric salts (unreduced by the light), etc. This is done by the use of several successive "clearing" baths of hydrochloric or

muriatic acid, which again dissolve out these sensitizing and other salts.

**Platinum
Processes**

As a process, platinum printing can take several forms. According to the nature of the sensitizer and developer, the latter requires to be hot or cold. The "hot-bath" method—the developer used at a temperature of 170° —is now almost discarded for the "cold-bath" process. But let not this latter term mislead—the developer must not be really cold: it should be tepid, and in the term "cold-bath" that is the meaning of "cold." A further variety of the platinum process, the print-out, is devised to allow the image to be seen of full depth in the printing-frame. This is done by introducing oxalate of potash or other "developing" salt into the paper. But the process has never been satisfactory, owing to the fact that the degree to which printing is visible depends on the state of the moisture of the paper. The damper the paper—and some damp is necessary—the more the image prints out. In other words, what is printing to a correct depth one day is not so the next, and therefore the process is bound to be irregular.

**Damp—the
Enemy**

Damp being the arch enemy of all platinum paper, the latter is supplied in sealed tins containing calcium chloride, which greedily absorbs moisture from the air and so preserves the paper. The first thing to remember in platinum printing, then, is that dampness of the paper before, during, or after printing, is fatal to satisfactory prints. It leads to muddy, coarse prints, and though something can be done to help matters, practically paper which once becomes really damp is spoilt, and may as well be discarded. As regards keeping before and after printing, the tins in which the paper is sold will not do. Unless the contents of a tin are to be used at once, the lot should be transferred to one of the calcium tubes sold for the purpose. In the storage tubes of Willis & Clements (The Platinotype Company), the lid is conveniently made so that it can be removed and replaced with one hand. During printing, also, paper may become damp, and therefore precaution is needed to see that the negative itself is dry (remember that gela-

tine absorbs moisture), and that the printing-frame and pressure-back are dry; they should be made so by keeping in a warm, dry place if there is any doubt. In any case, the sensitive paper should be backed up in the frame with a waterproof material, rubber, thin mackintosh cloth or celluloid. Lastly, in damp weather, the chance of damp getting in around the edge of the negative makes it advisable to have the rebate of the frame faced with rubber or to use the old-fashioned form of frame with plate-glass front. When printing in warm, dry weather, and using all the contents of a tin at one printing (as is usual in amateur practice), these elaborate precautions are hardly necessary.

Care must be given, too, when paper is stored for any length of time, that the calcium chloride "compound" in the tubes be renewed when it becomes moist: it is then useless for its purpose, but can be revived by putting in an oven or heating in a shovel over a fire, after stripping off the muslin in which it is wrapped.

Two further points: Never tear paper; always cut it with sharp scissors, trimmer or guillotine knife. Tearing separates particles of salts which may give rise to spots. Never store black or sepia prints together in the same tin or receptacle.

Platinum paper is considerably more

Printing sensitive to light than print-out paper.

In this respect it lies between the print-out and the development (gaslight) papers, and therefore somewhat more than the usual care should be given in filling the printing-frames and examining the progress of printing. This applies particularly to "sepia" papers, which are more sensitive than "black." The frames should not be opened in a full outdoor light, but inside a room, or in any place well shaded from broad daylight, which amounts to the same thing. The depth to which printing is carried with platinum paper is an (imagined) difficulty in the process, no doubt because the paper is unique in this respect. The paper is exposed under the negative until the picture is seen faintly, of brownish color, on the yellow ground. As with every other printing-paper, one has, at times, to sacrifice one part of the negative for another, but, as a

general rule, the details in the densest parts of the negative (the highlights of the subject) should be visible in the faint brown image. We have already cautioned the worker as to the evil effects of damp on the quality of the results. It must also be borne in mind that paper which is slightly damp gives a less visible image and, therefore, is liable to be over-printed. In very damp weather, or in towns near the sea-coast at all times of the year, the paper will pick up moisture if printing takes a long time and the frame is frequently opened. This is a source of trouble which can be avoided by adopting the method of exposing the paper which is used in carbon printing—that is, by the use of an actinometer, of which the Wynne Print Meter is the most convenient of commercial forms.

Printing by Actinometer Instead of judging the depth of each print from a negative, we put out alongside the frame an actinometer and note the progress of the exposure by it. Thus we do not expose the paper unnecessarily to light or damp by frequent opening of the frame. The “actinometer” is simply a numbered series of densities (composed, say, of different thicknesses of paper), behind which is exposed a strip of gelatine or collodion print-out paper. We first make a pilot exposure, to find the density number which must be visible when printing a given negative. We change the actinometer with its strip of print-out paper, place a piece of platinum paper behind the negative and put out the two together. Judge the depth of the print (by examining it) as correctly as possible, and, when you consider the exposure finished, note number of actinometer patches which are plainly visible, and develop the print. If correct, you have the “actinometer number” of the negative (for the particular paper). If slightly under- or over-exposed, it will probably be sufficient to adopt the next higher or lower number for subsequent prints. There are various patterns of actinometer to be bought; any one of them is used in this way, and affords a help in the correct exposure of prints which the amateur in particular will find of value. The printer who is in constant practice, and knows his paper from day to day, will not need to

rely on it, but the worker whose printing is done at odd times will find it of great service to make a habit of marking the negative once for all with its actinometer number. With a little practice in this way, it is an easy matter to judge of the actinometer number offhand when printing from a new negative.

Whether printing by inspection or actinometer, frames should not be put in direct sunshine unless the negative is extraordinarily dense. In the case of negatives which are flat and fogged, and want all the help they can get in the way of contrast, a sheet of blue glass placed over the frame or laid in the rebate will do some slight good, and is useful in conjunction with other means to the same end which can be employed in the development of the print.

Printing with Border A method of printing which is very effective with platinum paper is that of exposing a larger size of paper and using a mask to give a white margin. Platinum paper having a natural surface, innocent of an emulsion coating, the effect obtained in this way is as near an approach to that of an engraving as is possible in photography. Moreover, the paper which is used for the platinum process is of great strength and toughness, so that a series of prints thus made with a white margin are admirably adapted for binding, and form a souvenir of one's friends or one's travels choicer in form than any mounted in an album, and at the same time are of indisputable permanence. The tinted or buff papers are particularly suited for making these prints with a margin for album or portfolio.

Development In every case, the staple substance of the developer is neutral oxalate of potash, to which are added other chemicals such as potassium phosphate, oxalic acid, etc., as the paper or the desired effect demands. One thing must be remembered: in no case must the developer be alkaline—that is, cause red litmus test-paper to turn blue. An impure sample of oxalate may be defective in this respect: if a proper supply is not obtainable, a little solution of oxalic acid is added, enough that the solution just turns blue litmus test paper red,

It is usual to make up a stock solution A of oxalate, 6 ounces in water 20 ounces. Hot water is used for making this, the oxalate dissolving much more easily. If the water-supply is a hard variety, containing much lime, the result is a milky mixture, due to some oxalate of lime being thrown down. If distilled or clean rain-water can be had, this will not occur: it is less if the tap-water be briskly boiled for five minutes, and allowed to cool somewhat before using, to dissolve the oxalate. By boiling, the gases in the water are expelled and much of the lime thrown down. Though it is best to use as pure a water as possible, no real harm results from the milkiness, since it is cleared out of the prints in the acid baths. The best plan is to make a quantity of the stock solution, and put it to stand a day or two to clear. As a rule, the solution is used for developing mixed with its own or twice its bulk of water; when making up these also (when hard water is used), it is well to allow a few hours for the further deposit to settle out.

**Development
Outfit**

The developer is contained in a porcelain dish—no utensils of iron or enameled iron must be used—which is preferably of a size about double that of the print, e. g., an 8 x 10 bath for 5 x 7 prints. For the cold-bath paper, the developer is used at a temperature from 65° to 75° Fahr., but for the hot-bath (sepia) papers, the dish is stood on an iron stand about nine or ten inches high. A ring gas-burner, at this distance below, then produces about the right amount of heat when turned down low. A few glass plates should be at hand for use as covers of the developing dishes, to keep the developer free from dust and dirt (in the case of the cold-bath), but chiefly, for the hot bath, which rapidly evaporates and becomes too strong unless covered. A few lengths of glass rod will be useful, with which to remove air-bells from the paper during development.

**Clearing or
Fixing Baths**

These are made up with pure hydrochloric or muriatic acid 1 part; water 60 or 80 parts. The best acid is the pure, colorless gummy liquid sold as "hydrochloric acid commercial pure," of sp. gr. 1.16. The 1.60

strength is for normal work. In some cases, e. g., when obtaining sepia tones on black paper, a much weaker bath is used. Three or four separate lots of the bath, each in a porcelain dish, must be used, and the last one, while in use, *must* always be water-white—not tinged with yellow. The bath is to remove the iron salts from the paper, and a solution which (from its color) is seen to contain iron cannot be expected to leave prints free from iron. As soon as bath No. 3 is seen to be yellow, throw away No. 1, use No. 2 as No. 1, and No. 3 as No. 2, and pour out fresh, clean acid solution for No. 3. When large numbers of prints are being turned out, with printing going on at the same time, it is a convenient plan to use a weaker acid bath (1:150) for No. 1. Here prints can soak for as long as they like without fear of becoming over tender, or (in the case of some sepia prints) of the color suffering. Then, when all the prints are developed, transfer them from cleaning bath No. 1 to No. 2 and No. 3, each of the full 1:60 strength.

The two chief points to remember in clearing platinum prints are: (1) Bath No. 3 must be white all the time. (2) Avoid rubbing prints over each other while in the acid baths: the paper is tender at this stage and friction is liable actually to rub off the image. This does not apply to semi-smooth papers, such as Japine paper, which has a hardened, tough surface,

Just as in ordinary silver printing, if

Washing you fix or “clear” thoroughly, a short washing will soon remove all the salts in the paper; but if fixing or “clearing” is not done properly, no amount of washing will make up for it. This holds good even more in platinum printing than in the use of print-out or bromide papers. A washing of fifteen minutes is ample, or half an hour at the most; and this latter is necessary only with extra-thick papers.

So far, all we have said applies
Developers: equally to all varieties of platinum paper.
Black Papers It is in the particular manner of development that differences of treatment are called for. We will take first the cold-bath black paper, which is perhaps the best paper for a beginner. The instructions

will apply to the KK, CC, TT, YY and ZZ papers of Willis & Clements (The Platinotype Company), the Eastman platinum papers, the Ilford "Platona" and similar products. The developer best suited for the individual paper is given by each maker, who usually advises the use of his own developers. Willis & Clements supply special "D" salts, one tube of which is dissolved in 48 ounces of water to form a stock solution, which is mixed with an equal bulk of water for average use. A formula which may be made up from pure chemicals obtainable anywhere is: Stock potass oxalate solution (as already given), $6\frac{1}{2}$ ounces; water 14 ounces; oxalic acid, saturated solution 1 ounce. This may be taken as a good developer for any platinum paper. Somewhat colder tones, similar to those obtained with the D salts, are given by oxalate and potass phosphate together. This mixture is recommended by the Eastman Kodak Co. for their papers in proportions which approximately, are as follows: Potass oxalate: Stock solution A (already given) $6\frac{1}{2}$ ounces; potass phosphate, 1 ounce; water to make in all 20 ounces.

There are several different varieties of potass phosphate and, though all will do, the best is the so-called mono-potass salt of the formula KH_2PO_4 . These are quite enough formulæ for our cold-bath developer. Remember that "cold-bath" really means tepid—a temperature not lower than 60° Fahr. Each print (dry) is floated face down in the developer. In doing this, one way is better than another. If you plant the print flat on the surface of the liquid, you are most likely to entangle air-bubbles between the two. Not that this matters much,—a run over with a glass rod detaches them,—but it is just as well to adopt a motion which gives air-bells a chance to escape. This is done by putting one end of the print to the developer and holding the other nearly vertically above it. The upper end is then brought down with a sweeping movement on to the liquid and tends to push air-bells before it.

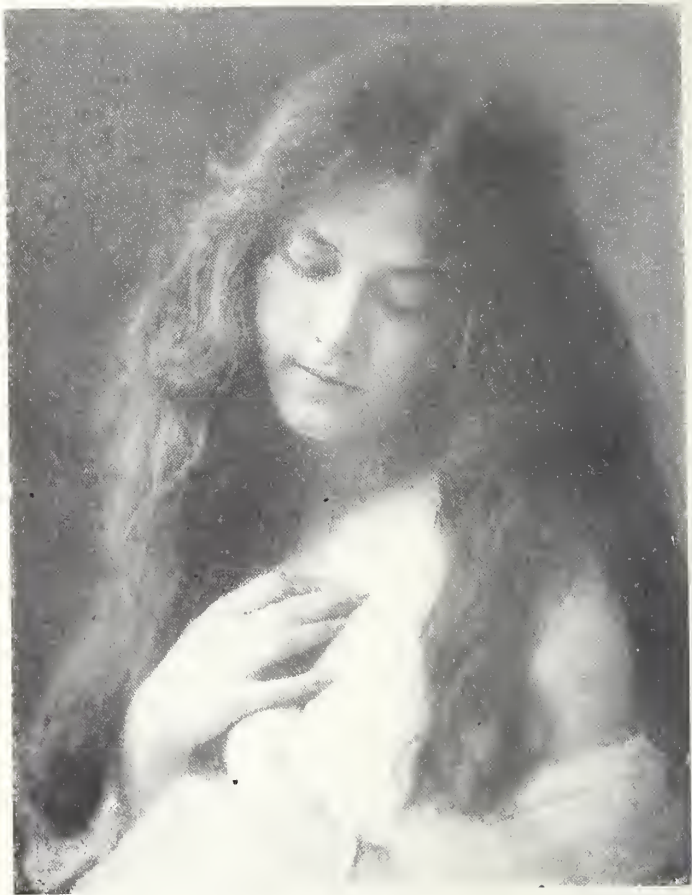
Almost the instant the print touches,

Development the picture comes up to its full strength.

The development, however, is not quite the instantaneous process it seems, for it must be thor-



Miss Jane Laurel
Portrait by Charles H. Davis



Study of a Head and Hand
By Charles H. Davis

ough—that is, must extend down into the depressions of the paper. In other words, the rougher the paper or the colder the developer the longer the latter should act. Granularity of the prints, which you will see described in the text-books as a mysterious defect which comes to blight the platinotype print, may be roughly summed up as the result of partial development—of the minute points of the surface to the neglect of the equally minute hollows. Because of very suddenness of appearance of the picture, there is the danger of supposing that an instant is enough for development. The time needs to be enough, but this sufficiency is short enough—thirty seconds or a minute at the most. While it is enough to float the print, no harm is done by totally immersing it in the developer. But with very large prints, and particularly in the hot-bath process (for sepia), the print is stiffer to handle if simply floated.

**Remedying
Under-
exposure**

It is seen at once, from the paleness of the picture, when a print has been under-exposed. If much under-printed, the best remedy is to expose a fresh piece. Longer development in the cold bath will not “bring up” the print more. The necessary depth may be secured by warming the developer to 90° to 110° Fahr; though this gives a warmer color, tending to brown. Warming the print (after first floating on the developer) before the fire has the same effect—and the same drawback of tone.

**Dollond's
Toning
Method**

For platinum prints which are weak or under-printed the gold toning process introduced by Dollond some years ago is advised. For this method a solution of gold chloride of a strength of fifteen grains to the ounce of water is required. The platinum print, which has been developed, cleared, washed, and dried, is soaked in water, placed on a sheet of opal glass, and the water blotted off. It must next be rubbed all over with a little glycerine by means of the finger, and when seen to be evenly coated, a few drops of the gold solution are poured over the print and well and rapidly mixed with the glycerine with the help of a fine camel's-hair brush. During the operation the print must be

kept brushed lightly, in order that fresh gold solution may be brought into contact with the image, and an even action secured. Should the high lights show any signs of discoloration, the action must be stopped. When the desired effect has been obtained, the print is placed in water and rapidly rinsed.

It is next sponged over back and front with an ordinary metol-potash developer, and finally well washed in water. The developer is employed to reduce any traces of gold chloride left on the paper, which might otherwise give rise to a pink stain in the high lights. Obviously a simpler remedy would be to make a new print!

Over-printed paper is best treated with a developer restrained with glycerine. As explained later under obtaining vignettes and other effects, the addition of sufficient glycerine renders the developer almost inoperative. A lesser proportion simply moderates its action, so as to allow of an over-exposed print being arrested at a suitable stage. This is a better way than using a weak developer, which is apt to give granularity. A suitable formula is: Stock oxalate solution A, 1 part; water, 2 parts; glycerine, 1 to 2 parts. Development, instead of being complete in a few seconds, will, in this bath, require about five minutes. The result is passable as regards contrast, but the color of the print is not of the best.

Another dodge for making the best of an over-exposure is that of Mr. E. T. Holding: Soak a piece of coarse fabric in the developer and wring out. Then lay it on the print in contact all over. The print develops only in those parts touched by the coarse mesh of the fabric. The detail is thus saved, and the result is that of a photograph on canvas.

When printing from flat negatives on black papers, great improvement can be obtained by adding a little potass bichromate to the developer. Keep a solution containing 30 grains potass bichromate per ounce of water at hand for this purpose, and use cautiously. A drop or two in 40 ounces of developer has a distinct effect in giving vigor: the most that may be usefully used is 1 dram in

this quantity of developer. Further addition beyond this seems to be without effect. The bichromate is used up as prints are passed through the developer, and further small doses are necessary to keep up the contrast.

Hard negatives are not so amenable to yielding soft prints. The best plan is to warm the developer a little—not so much as to give a warm tone—and to add a very little hydrochloric acid or 10 per cent solution of potass chloride. A very little is required: The rough-and-ready method of the platinum printer is to dip his finger into the acid-clearing bath, and so introduce a little acid into the developer. The black papers allow of more adjustment to the negative than the sepia varieties, but the greatest facility in this respect is given by the Japine papers.

Modifications for Thin Negatives With a negative which is a little too thin for producing a vigorous print in platinum, A. J. Jarman advises that the developer be modified as in the following formula: Potassium oxalate, 8 ounces; sodium phosphate, $1\frac{1}{2}$ ounces; oxalic acid, $\frac{1}{4}$ ounce; chlorate of potash, $\frac{1}{4}$ ounce; boiling water, 40 ounces. If the negative is very thin, then the following formula can be used with advantage: Potassium oxalate, 6 ounces; sodium phosphate, 2 ounces; chlorate of potassium (C. P.), 1 ounce; oxalic acid, $\frac{1}{2}$ ounce; boiling water, 60 ounces. When mixing these developers, always use boiling water, poured over the salts in a stoneware crock; the mixture will then be made right, and stirred with a strip of clean glass, and allowed to cool off completely. Filter these developers before use through absorbent cotton, using a glass funnel. Enameled funnels are not reliable for this work, and tin ones must at all times be avoided.

If more vigor is required, add ten drops of a solution of bichromate of potassium, made up sixty grains to an ounce of water. Both the chlorate and bichromate are powerful oxidizers, and aid in giving contrast.

As soon as the salts in solution No. 2 have dissolved and the solution cooled down a little, add 8 ounces of glycerine. Stir the mixture well so that the glycerine becomes well incorporated. When the mixture is quite

cold it is ready for use. Platinum prints made from thin negatives must be printed in well, so that they appear to be overprinted, for development in this developer.

In the course of a few days it will be noticed that a crust or scum will form all over the top of this developer, a sort of fungus very much like what is called a vinegar plant. This can be removed in one piece and the developer filtered. After this no such growth forms again, the developer improves in working quality. After a few times using, even in this solution further contrast can be secured by the addition of a few drops of bichromate of potassium solution.

It will be found to be a very good plan to have both developers, No. 1 and No. 2, at hand, so that if the development does not proceed with sufficient vigor in No. 2, simply give the print one dip into No. 1. The action will then proceed rapidly. Stop this quickly, just as soon as the desired quality has been reached, by dipping the print quickly into the acid solution.

Sepia Prints on Black Paper By adding bichloride of mercury to the developer and using the mixture hot, black papers may be made to yield prints of sepia tone. This process, of which numerous variations have been recommended, succeeds best with prints which are not too strong in contrast and, even with them, when one is content with a moderate degree of warmth. The tendency is to obtain a warmer color in the lighter tones than in the shadows. The heavier the contrasts in the prints, the more marked is this effect; though some confess to admiring it. The print to be developed in this way should be just fully exposed. Forcing an under-timed print leads to a sickly color; while, if the paper is over-printed, the two-tone effect becomes more prominent. The best way is to make up a 10 per cent solution of mercury bichloride in alcohol, adding this to the developer (or to the double-strength stock solution, mixed with an equal bulk of glycerine). The more mercury, the warmer the tone. The proportion may be $1/40$, $1/30$, $1/20$ to $1/10$. The smaller doses give warm black; the larger, reddish sepias. Use the developer at about 130° to 140° Fahr., and be particular to use much weaker

acid baths for clearing prints, viz., one-half ounce hydrochloric acid in 150 ounces water. The standard 1 in 50 or 1 in 80 clearing bath reduces the mercury-toned prints. Indeed, so will the weaker bath, if it acts long.

An excellent alternative formula is that of C. F. Inston. Prepare two solutions: (A) Potass oxalate, 1 ounce; water, 7 ounces. (B) Potass citrate, 75 grains; citric acid, 120 grains; mercury bichloride, 45 grains; water, 7 ounces. The developer is made by mixing equal parts of A and B at the time of use, and slightly warming. The potass citrate allows the developer to be used much cooler than when mercury alone is added, though some have found that the tones so obtained with citrate do not last. Mr. Inston, however, states that they do.

Remedy for Contrasty Prints The way the acid clearing bath eats out the sepia tone of a print developed with mercury may be turned to advantage in dealing with flat negatives. We can clear the sepia tone right off, and so get a black print of extra contrast. We use a very little mercury, so as to secure proportionately more toning action in the high lights than in the shadows. Then, on clearing off the sepia tone in the acid bath, we get a black-and-white print of better contrast. A heavier dose of mercury will give still more contrast in this way, requiring an extra degree of printing. But remember that you must not expect this method to give you the fine gradation of a print (from a good negative) made and developed in the normal way.

Workers who have to use negatives not up to a passable standard, or those who seek effects in tone and color, will find great latitude in this process, for which the reader is referred to pages 549-552 in *THE PHOTO-MINIATURE*, No. 96, where Miss Stanbery sets forth the use she makes of it.

The special "sepia" papers sold for Sepia Papers giving warm colors with an ordinary developer contain the necessary sepia-giving chemicals in the paper itself. Black papers must not be stored with those for sepia, nor "sepia" dishes or developers used for black, otherwise it is impossible to secure pure blacks. Also, sepia papers are more sensitive to light and somewhat more susceptible to damp

than black. The sepia papers on the market include varieties for both hot and cold development. The hot-bath method is undoubtedly much the better of the two.

Compared with any of the black papers, the "sepia" papers call for more exactness in handling, and do not allow the same latitude in remedying errors of exposure or using poor negatives, as do the black papers.

The clearing of sepia prints is done exactly as already directed for black, except that the acid bath must be half-strength, *i. e.*, 1 to 120 in some cases, and the baths should be stood in a poorly lighted corner, since sepia prints may become fogged by too much exposure to light at this stage of their making.

From what is said above, the reader will see that my own preference, on the grounds of permanency, is for a hot-bath sepia paper. This is not to deny the possibility of producing a cold-bath paper which will yield permanent sepia prints. But, in my judgment, the result of such a process should be tested with a solution of potass cyanide, and any reducing action of this latter be taken as reasonably good evidence of the likelihood of the prints to become pale in time on exposure to light, showing this bleach-out action particularly in the high lights. The most reliable cold-bath sepia paper in my experience is the "Angelo" sepia paper in several varieties, made by the Eastman Kodak Company.

This paper is a platinum paper made by Willis & Clements, which differs in so many respects from ordinary black and sepia papers that it calls for separate mention. In the first place, the surface is not the matt or rough of the other papers, but a semi-matt (semi-glossy) of a character resembling that of many collodion papers. In other words, the prints retain, when dry, the fine juicy appearance which they have when lying wet in the baths. This means greater detail and transparency in the shadows. In the next place, in Japine papers the image holds very tenaciously to the surface, and is free from the liability to damage by abrasion when prints are rubbed over one another in the acid baths. Lastly, sepia Japine, in comparison with many other sepia papers, pos-



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Youth

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sesses more latitude in development, and lends itself better to making the best of negatives which are not the most suitable in quality for the finest results in platinum. In general, Japine papers, both black and sepia, are treated just like the ordinary papers. It is equally necessary to avoid storing black and sepia papers together, or using the same dishes for the two different varieties. The special surface causes the paper to be less sensitive to damp. As with the ordinary papers, the black Japine is for cold development; sepia Japine, for hot. The tone of the latter is warmer in color than that of the earlier W. & C. sepia platinotype.

Developing The standard developer is prepared
Sepia Japine from the "Sepia Japine salts" of Willis
 & Clements, the whole contents of the tube dissolved in 40 ounces rain or distilled water, forming a stock solution, which is mixed with its own bulk of water to form the working developer. This is used at a temperature of 160° to 170° Fahr., and is the developer which should be used for negatives of full quality, on the vigorous side, if anything. Japine, however, lends itself to giving brilliant results from less contrasty negatives by the use of glycerine in the above developer. A suitable average proportion is 1 part of pure glycerine to 6 parts of the working developing solution; but, when thus used with glycerine, the temperature must not be above 130° Fahr.

Development is best done by immersing the prints completely in the solution, and, as the Japine surface is somewhat more impervious than the customary papers, care needs to be given to permitting ample time for development. At the higher temperature (with no glycerine in the developer) fifteen seconds is ample: with glycerine (temperature 130°) a full minute should be allowed for each print. Remember that granularity is the result of developer not acting fully on the microscopic depressions in the paper, in consequence of too short a time. Clearing in the acid baths is done in exactly the way already described. In drying, the Japine prints do not lie quite so flat as the ordinary brands of paper, but the curl is very slight in the paper as at present made. The prints, on removal from the wash

water, are first pressed for an instant between blotters, to mop off surface water, and then laid between lintless blotters to dry. The hot pressure of the dry-mounting machine gives a distinctly additional luster to the surface.

**Other
Developers
for Japine**

In place of the sepia Japine salts, with or without glycerine, directed in the preceding paragraph, a developer made up from potass oxalate may be used, and is advisable in dealing with negatives which tend to hardness. Use a solution made by mixing the stock solution of oxalate A (of 6 ounces per 20 ounces water) with twice its bulk of water. The temperature should be a little lower than with the Japine salts, viz., 160° Fahr. By adding oxalic acid to this developer in the proportion of 1 part to 20 parts of the potass oxalate, the result is a shade brighter in contrast—a further stage on the road to the normal contrast given by the sepia Japine salts. With Japine, we thus have at disposal the four developers: (1) Plain oxalate; (2) oxalate with oxalic acid; (3) Japine sepia salts; and (4) sepia salts with glycerine. The contrast given by these is in an ascending scale, and, though the difference between each degree is small, the series is a useful one for obtaining special effects, or for equalizing the prints from negatives which differ a little in strength. Glycerine, it should be noted, does not work with the plain oxalate developer for this paper, only with that made by the sepia Japine salts.

**Brightening
the Japine
Sepia Tone**

A further useful variation in the results with Sepia Japine is made by an after-toning process, which is an old method revived. Most handbooks on platinum printing refer to the so-called catechu or Packham process of toning, in which the finished and washed print is subjected to a kind of staining process in a weak solution of catechu. The process was brought out some ten years ago by Mr. Packham, but with ordinary platinum papers it has proved most erratic. Prints are loath to take on the warm tone in the catechu bath, and therefore special developers containing sugar have been recommended, in order to produce a black print which takes kindly to the toning. But Sepia

Japine prints treated by this process readily assume a pleasing tone of somewhat warmer color. At the same time, the high lights and any white margins of a print become slightly tinted, so that the effect is a mellowing one as well as toning. But the general stain is so slight that its effect is quite pleasing, and may be commended particularly to the professional printer who wants to tone down the contrasts in a portrait a little. This he can do with regularity by this method. The basis of the toning mixture is catechu, of which a stock solution is made by boiling commercial brown catechu, 1 part, with 20 parts of water for ten minutes, cooling and adding 4 parts of alcohol. This is mixed with water in the proportion of about 1 part catechu solution to 100 parts water. It may be used cold, in which case the toning will take a long time; or warmed to about 130° Fahr., when the warmth required is obtained in about 5 minutes. Prints are then simply rinsed in water before being dried off in the usual way, i. e., between lintless blotters under slight pressure.

**Local Brush-
Glycerine
Development**

In treating of the development of over-exposed black cold-bath paper, we explained the use of glycerine as a restrainer of the developing process. There is another purpose to which the glycerine method can be put, namely, the control of the light and shade in the print. The amount of control by this process is very great indeed, and the results which can be produced are limited only by the worker's knowledge and patience. The process is briefly as follows: The print is taken in the usual way, though somewhat more deeply printed than usual. A clean glass plate is thinly smeared over with glycerine and the print pressed down upon the surface, the sensitive side up, of course. The first operation is to coat the whole surface with pure glycerine, applying it with a soft, flat brush about two inches in width. The coating is evened by gently pressing a sheet of lintless blotting-paper on the print, and so removing the excess of glycerine. The print is now ready for development, for which two solutions are prepared—one, a mixture of the ordinary developer and glycerine in equal parts, and the other the stock developer

without glycerine. These are applied with brushes of appropriate sizes; for average work one of about three-eighths inch diameter, and one much smaller for fine detail. Keeping a rough print from the negative before us as a guide, the glycerine developer is first used to bring up the parts of the subject required. The glycerine on, or rather *in*, the print softens the outlines and prevents edginess of the parts thus selectively developed. As soon as a given effect is secured, that part is quickly blotted with pure white absorbent blotting-paper and once more covered with glycerine. The pure developer is used for the parts desired of full strength; in applying it, particular care must be taken not to have the brush too fully charged. Any drip from the brush is fatal to the process. In addition to thus producing controlled results in monochrome, Messrs. Stieglitz and Keiley, to whom the method in its pictorial application is due, use it for obtaining two-color effects by employing three solutions as follows: (1) A fairly strong solution of mercury bichloride, (2) of developer containing mercury solution, and (3) a mercury-glycerine developer. These are used in exactly the way already described, except that greater care is needed and the mercury color is taken much deeper than one of black. The brushes used for the mercury solutions must on no account be employed for the plain developers. Finally, when all has been developed up as the worker judges best, the print is put in the acid clearer and the surface quickly gone over with a soft brush. In the case of black prints, the usual 1:60 bath is used, but one much weaker, 1:200, must be made up for the mercury-developed prints. One of the most effective uses which may be made of the glycerine process is in producing vignettes of a sketch character from an ordinary negative. The background may be subordinated to any desired degree. All these methods for advanced workers in platinum are fully detailed in "The Camera Notes Process for Glycerine Development of Platinum Prints," published a few years ago by Alfred Stieglitz and Joseph T. Keiley, copies of which are still obtainable, I believe. It is a monograph of 12 pages only, but well worth the dollar it costs.

**Soft Prints
from Harsh
Negatives**

Walter Zimmerman gives the sub-joined method of obtaining soft prints and "atmospheric effects" from harsh, sharply defined negatives. It is applicable to the use of all printing papers, but is most effective with platinotype. It is to turn the paper upside down in the printing-frame, so that the white side is next to the film. The sensitized surface is then printed from the back, which distributes the light in a way that is particularly agreeable to those who like very "soft" effects in photography. The texture of the paper gives a more pleasing effect than the atrocious "bolting-cloth" method which had some vogue a few years ago. This effect of distribution of light may be increased by turning the plate over also, so that the objects will not be reversed as to position, as is the case when the paper alone is turned. Let the reader try this reversal of both plate and paper with a large marine view negative, and he will have a new picture, and, probably, a fine one, with "atmosphere" and a little mistiness. The rougher grades of paper are the best for this work. Printing and development are, of course, as usual, but the time required for printing is ten to twenty times that by the normal method. A reference will illustrate how this photographic "stunt" may be useful. I had made one of those rare snap-shots, two or three years ago, of a schooner in Boston Bay, with long trailing shadows of its masts and sails in the calm water. An enlarged plate, made for me professionally, was so absolutely perfect that it was simply as "hard as nails;" and, while friends gladly accepted copies—and that's some tribute—the juries invariably passed it by on the other side. I tried the "other side" too, by the "turning-over" process just described, and the juries then thought differently.

The following method, due to A. J. Jarman, will be found useful to the maker of large prints, where waste of paper involves considerable expense.

**Reducing
Over-printed
Platinums**

The question has often been asked, and is still asked, "Can an overdeveloped platinum print be reduced?" It can be reduced, not by chemical means, for it is impossible to dissolve platinum by any chemi-

cal agency when deposited upon paper without destroying the support, but mechanically. The process is very simple, especially if the print has not been allowed to dry from the time it has been developed, cleared, and washed. The paper is then very pliable, and the platinum image is held by slight tenacity to the surface. If the print has been allowed to become dry, it must be well wetted and allowed to soak for some time, say an hour, before reduction is attempted.

The following utensils and materials

The Outfit will be required: A nickel-plated or tin coffee-pot, with the handle attached to the side. This kind of a pot is better handled and the operation of reduction more easily watched than where a coffee-pot of the usual kind is employed. A large and deep *papier-maché* tray; one quart of boxwood sawdust or fine sawdust from white wood, that is, willow, the boxwood dust being the better. It can be procured at any watchmaker's material supply house or from those who supply material for electro-platers and gilders. This kind of sawdust contains no resinous matter. The print to be operated upon, after being thoroughly wetted, is placed in a sloping position upon a clean, smooth board covered with white oilcloth, or upon a clean sheet of glass, clipped at the two top corners with clean wood clips. A pint of the sawdust is poured into a half-gallon, wide-mouthed bottle, and thereto added about three pints of clean, cold water. This is shaken up well and poured into the coffee-pot.

We now proceed to pour the water

Manipulation and sawdust upon the part to be reduced, and carefully watch the operation, because in a very short time the platinum will commence to wash off the paper. The continued pelt-ing of the little crisp pieces of wood dust removes the excess of deposited platinum by abrasion, the result being that the heavy shadows soon begin to lighten up. In fact, if a very dark print be taken and carefully treated all over, the effect produced is like a beautiful engraving. When the operation is finished, it becomes difficult to believe that the resultant picture is a platinum photograph, except to those who know how it was produced.

If a sepia platinum print be made and printed a little more deeply than is suited for the usual class of portrait, and is then treated as described, the effect is very charming, particularly if the print is a copy of an old oil painting. Head and bust portraits from life treated in this way possess a very desirable quality, because of the genuine stipple effect aimed at by the use of a somewhat coarse-grained paper. Views and landscapes produce effects that are not equaled by any other process except engraving.

The writer is not aware that this method of reducing the overdensity of a platinum print has ever been brought into use. It will prove to be both a new and novel power in the hands of the skilled photographer. It could, no doubt, be applied to other photographic prints, but the object here is to point out its use in a direction where it has already proved its value.

The sawdust reducing mixture can be saved for future use. The best plan to adopt is to wash the sawdust well, then wring it as dry as possible in cheesecloth, and lay it out upon blotting-paper to become quite dry.

Another point may be mentioned here. In an over-dense platinum print the whites are very apt to become slightly grayed. This grayness is easily removed by the sawdust and water reducer.

**McCorkle
Toning
Methods**

Many formulæ for obtaining red, blue and other tones on platinum prints with uranium, have been published, but none, to our knowledge, which have been so successful in practice as those of the late James H. McCorkle, described in *THE PHOTO-MINIATURE*, No. 40, now out of print. If care be taken in keeping dishes to their proper baths and drying muslins for certain prints and no others, McCorkle's methods allow of the most beautiful and vivid tones being obtained. But the care is necessary. Provide three or four deep porcelain dishes, cleaning the uranium deposit off after use with cotton wool. Keep each dish rigidly for toner, acid, etc. The toner is made up from two solutions: A. Uranium nitrate, 10 grains; glacial, acetic acid, 1 dram; water, 5 ounces. B. Potass ferricyanide, 10 grains; glacial acetic acid, 1 dram; water, 5 ounces.

Solution A will keep well and can be made up in bulk in the above proportions; B does not keep, even in the dark—it should be made up at the time of toning and used within an hour or two. In each solution, hydrochloric acid (half the quantity) can be used in place of the acetic. To prepare the toner, mix: A, 5 ounces; B, 5 ounces; and then dissolve completely in the mixture a crystal of pure soda sulphite about the size of a small pea. Make sure the sulphite is all dissolved, otherwise the prints will show dark spots. As a guide to the quantity of toner to make up, 10 ounces of the mixture will serve for toning six or eight whole-plate prints to red, or eight or ten to blue, after which the prints are apt to be stained. The principle of using the one toner for both red and blue colors is to fix out all the iron in the prints (with acid baths) when toning to a red, but to leave iron in the prints, to a greater or less extent, for the blue tones, by giving a few seconds only in the acid bath and immediately passing the prints into the toner. By thus utilizing the iron in the paper, the blue tones obtained are far superior to those produced by a toning solution containing iron.

The toner intensifies; so print as for a
Red Tones light picture, just deep enough to show details in all parts. Treat in the oxalate bath as usual for black and white, but do not over-develop. Then fix in five successive baths of hydrochloric acid, 1 ounce, water, 60 ounces. You must remove all the iron in the paper or you will not get a brilliant red tone. Wash the prints in porcelain dish—not in one of iron on any account—and put to dry on clean muslin or cheesecloth. Having poured the toner into its dish to the depth of an inch or so, place the dry prints in, one by one, face down. Turn them over quickly and go over the front and back of each with cotton wool. Now keep bringing the bottom print to the top so as to keep the prints constantly moving. As they reach the desired tone, remove the prints quickly, go over back and front of each with cotton wool wetted with clean water, to remove the deposit of uranium, and place in an acid bath of half the normal strength, viz., hydrochloric acid, $\frac{1}{2}$ ounce; water, 60 ounces. Give two

changes in this solution, wash in clean water for a few minutes, and put to dry—on cloth or muslin, which is kept for red prints only.

Chocolate Tones

By using the toning bath after a number of prints have passed through it and it has become rather thick and somewhat dark in appearance, the tone obtained is chocolate in color but very desirable.

Blue Tones

For these, print so as to secure full depth with all detail, that is, rather darker than will give a satisfactory black-and-white print. If the print is too light, the blue tone lacks vigor, has a washed-out look, without the rich ultramarine-blue color in the shadows. Before developing any prints, mix the toning bath and place the dishes in order as follows: Developer, as usual; acid clearer (1:60); toner, as for red prints; quarter-strength clearer (hydrochloric acid, $\frac{1}{2}$ ounce; water, 120 ounces). Develop the print as usual, then place in the ordinary acid bath for not more than ten seconds and pass direct into the toner, going over back and front as already described. The print quickly tones to a bright blue, and is then removed to the second weak acid bath and finally washed. This process is repeated for each print, replacing the toning solution by fresh as it becomes discolored. Red and blue prints must not be washed together nor dried on the same cloths; if they are, the red will invariably suffer in tone.

Blue-Brown Tones

By proceeding as for blue tones, but immersing the developed print for a longer time (thirty seconds or more) in the acid bath, intermediate tones are obtained ranging from pure olive-green to pure brown. If, in the toner, the shadows do not come up to the desired brown color, rinse the print in water for an instant and put it back into the full-strength clearer for another half-minute, then returning it to the uranium bath. The olive shade depends on the amount of clearing before toning.

Toning Maxims

Keep fingers, trays and drying-cloths scrupulously clean, and avoid any iron from the paper or blue-toned prints coming near those being treated for red. Mix fresh

toner as soon as the bath becomes cloudy, keeping the separate A and B solutions at hand for this purpose. Failures can be brought back to black by placing the prints in a saturated solution of carbonate of soda or in the normal oxalate developer left over at the end of a day's platinum printing: they can then be toned to a red, though, of course, not to a blue, which requires the iron in the paper. With mercury in the developer, the tones are even brighter and warmer. For prints so developed, it is better to use 40 grains of ammonium sulphocyanide, in place of the sulphite, in making up the toning bath.

Restoring Old Prints

Although the image of a properly made print is as imperishable as the paper on which it is supported, there is one change to which platinum prints are liable in time and with exposure to light. This is a slight yellowing of the paper base, and is caused by traces of iron salt left in the paper. It is almost impossible by immersion in the clearing baths of hydrochloric acid to remove every trace of iron from paper fiber. In cases where a print has yellowed with age, it is usually that the iron has separated in a more colored form. The remedy is to soak the print in a decoction of bleaching-powder, made by shaking up bleaching-powder (sold also as chloride of lime) with some water—about six times its weight—and adding a few drops of hydrochloric acid until there is a distinct chlorous odor. A few minutes immersion of the print in this mixture will remove the stain, and the acid preparation is washed out of the print, by fifteen minutes or so, in several changes of water.

The only other cause of deterioration in platinum prints worth mentioning is simply—dirt. The natural surface of the paper, particularly in the rougher varieties, retains dirt. The best method of restoration is to make a fairly thick cream of flour and water, and apply to the print with a soft brush, stroking in all directions. The paste is then washed off under the tap, the dirt being thus carried off with it.

Mounting

As good a mountant as any for platinum prints is freshly made starch paste. It is used not too thick and well brushed into the back of the print, which then requires to be

laid in position on the mount and lightly pressed into contact. In applying the paste to a batch of prints, care must be taken to avoid rubbing one over another; it is not difficult to injure the image mechanically by abrasion. The best plan is to lay prints face down on a clean glass plate and go over the back of the topmost print with the starch mountant, according to the method described in *THE PHOTO-MINIATURE* No. 102. But, owing to the complete absence of curl from a platinum print, attachment to the mount by a touch of paste at the two top corners of the print ensures the latter lying quite flat, and for the majority of purposes provides the necessary security. This is the method when employing the system of multiple mounting, full instructions for which are given in *PHOTO-MINIATURE*, No. 102. Dry-mounting is of course excellent for platinum prints and almost essential to securing the highest quality from a Japine print. The perfect flatness resulting from the hot pressure provides, in the case of the latter paper, the final touch of surface.

It may often happen that a print which
Varnishing looks rich and brilliant when wet after the final washing, will present a flat, dull appearance in the dark portions of the picture when dry. This lost brilliance may in a great measure be restored by coating the print with a good varnish, mastic or other. A very good formula for such a varnish is recommended by A. J. Jarman, and consists of a solution of about 300 grains of guncotton in 2 ounces of concentrated amyl acetate. The mixture must be thoroughly shaken, and when solution is complete, carefully filtered through three or four thicknesses of of butter muslin. The dried prints are to be dipped one after another in this solution, and then hung up by one corner to drain, and when dry they may be mounted as usual. E. T. Holding advises a simple solution of wax and turpentine rubbed well into the print. W. J. Warren advises water megilp, applied with a tuft of silk to brighten the shadow detail. As a rule, however, the dull surface of the matt platinum print, or the slight sheen of the Japine print, will be approved without further gloss.

**Recovering
Platinum
from Wastes**

This last word is for the professionals or large users of platinum papers. The first acid bath and any developer which is no longer usable should not be thrown away, but kept for the recovery of the precious metal. It will pay the professional worker to look after this, even though the number of prints he makes is much smaller than even when working on a scale smaller than would pay in the case of silver processes. The best method of throwing down the platinum metal is with zinc, and I cannot do better than quote here the directions for the process given by Pirie MacDonald, almost all of whose "photographs of men" are printed in platinum: "The real way to do it is to take a 20-gallon stone jar, and pour into it the first acid wash both from sepia and black papers. If you have any developer to throw away, pour it on too. Then cut two sticks and make a cross of them—large enough to bridge the top of the jar but not to fall in—and suspend from the cross, by a stout string, some strips of zinc. Sheet zinc from the hardware store costs thirty cents a pound, but you can buy scrap zinc from photoengravers, the odds and ends cut from their plates, at five cents a pound. Let the zinc hang down to say within three inches of the bottom of the jar, but don't let it touch the sludge, for it will become coated and inactive. When the solution has stood twelve hours, it will settle and become colorless; but, if it remains to any degree yellow, it still has platinum in suspension, and you must add, say, half an ounce of muriatic acid. Scrape the zinc free from any coating it may have accumulated and examine the solution again after another twelve hours. This, however, will rarely be necessary. When the liquid has become colorless, tip out most of it and let it go down the sink, being careful not to disturb the whitish gray sludge which has been thrown down on the bottom of the jar. When you have used, say, about one hundred rolls of platinum paper, take out the mud, drain it on a cloth which you have tacked on a stretcher, letting the drip go back into the jar and, when dry, it is ready for the refiner."

Notes and Comment

These repeated delays in the publication of THE PHOTO-MINIATURE are in truth exasperating, but not more exasperating to the "gentle reader" than to the editor and publishers thereof. To the latter every delay means financial loss as well as the exasperation already mentioned. The difficulty—which has existed since the beginning and will doubtless continue to the end—is simply the difficulty of obtaining monographs (worth printing) in sufficient numbers to enable me to issue the magazine once every thirty days. It is incredible that one should not be able to get twelve readable monographs on subjects of general interest to amateur and professional photographers within the year, but my experience tells me that it is a fact. Out of every ten monographs offered me, five or six have to be put aside as not possessing sufficient interest to justify publication in these pages, i. e., such as deal with "Emulsion Making," "Photo-Micrography" and similar specialties. Of the four or five which I can accept for use, possibly one, possibly two, will be delivered to me within three or four months after the date promised. Thus: of six monographs arranged for last year, for delivery during the first three months of 1911, only two have reached me as yet. Finally, when a monograph comes, it may or may not be "fit to print;" often it is not, for I have my own notion as to what is interesting and useful, and therefore worth publishing. This means extra work on my part—and delay.

All of which is simply by way of explanation to the patient and the impatient who alike wonder why. There is no doubt whatever of the continuance of the magazine, so long as I am assured that it is wanted, and there is no doubt about this. But apparently I have undertaken a task of peculiar difficulty and the reader

must match my courage by his or her patience. Things may mend, in the meantime courage and patience are virtues worth cultivating.



H. Oliver Bodine, whose personal service won for him so many friends during his association with the Photo Crafts Shops, at Kenosha, and Racine, Wis., has taken the position of director of publicity for the Wollensak Optical Company, Rochester, N. Y. This means that the world will be intelligently and persuasively informed about the Wollensak specialties to the practical advantage of all concerned. Mr. Bodine, with Mr. Weil of the Wollensak Company, gave me the pleasure of a call some days ago, brimful of youthful enthusiasm and interesting talk about the new Wollensak shutters.



That ever ancient, ever new perplexity: "What depth of focus really means, and what happens when we stop (the lens) down" forms the subject of a circular recently received from the Taylor Hobson Company, 1135 Broadway, New York. This time the query is answered by Mr. A. Mann, with diagrams to please the most fastidious. Readers interested can obtain a copy from the Taylor Hobson Company by mentioning this note in their request, and it is well worth this slight trouble.



Ilford plates and specialties, well known in Britain, are now obtainable in this country from E. B. Meyrowitz, 104 East 23 street, New York, and presumably from the branches of this firm in St. Paul and Minneapolis. Speaking of this reminds me of the fact that, of all the photographic supply stores in New York, the window display of the 23d street Meyrowitz store is by all odds the brightest and most interesting. This, I believe, is due to the fine sense of design and color possessed by Harold M. Bennett, the manager of the photographic department.

Developers and development are topics of perennial interest to photographers. This gives interest to the new and revised edition of Hauff on "Modern Developers and How to Use Them," published by G. Gennert, New York and Chicago. The information given by this brochure is reliable and altogether practical. A postcard to G. Gennert, mentioning this note and the name of the book will secure a copy. When writing this house it will be well worth while to ask for the booklets about Sylvar lenses, the Sylvar hand-camera (remarkable in compactness and efficiency at a very reasonable price), and Ensign films.



The Bausch & Lomb Optical Company, Rochester, N. Y., desire pictures of game and child life at home, made with their Tessar or Protar lenses. Readers having negatives of interest in these lines made with the lenses mentioned are asked to send particulars to the company, addressing Department W.



Few books within my knowledge dealing with negative-making are more readable than the little pocket-book titled "Negative Making" published by the Seed Dry Plate Division of the Eastman Kodak Company, Rochester, N. Y., obtainable from most dealers on request. It deals, without waste of words, with the foundation of a good photograph, the vital importance of the illumination of the subject, exposure and development and the choice of plates for different purposes. Standard development formulæ are also given.



The new Folmer & Schwing (Graflex), Rochester Optical Company (Premo) and Eastman Kodak Company (Kodak) catalogues are now ready and can be had for the asking from the nearest dealer. They are, as usual, full of interesting novelties introduced for this season and will repay a careful perusal.

Books and Prints

All books noticed in these pages may be obtained from the publishers of THE PHOTO-MINIATURE, and will be promptly forwarded, postpaid, to any address on receipt of the publishers' prices as here quoted.

The Artistic Side of Photography: Theory and Practice. By A. J. Anderson. Illustrated with 12 photographs, 12 halftone supplements, and numerous line drawings in the text. 360 pp. Cloth, gilt top. Price, net, \$4. Postage, 18 cents extra. For sale by Tennant and Ward, New York.

This is a delightful book, something quite out of the ordinary as photographic books go; written in racy English, charmingly printed, sumptuously illustrated by masters in pictorial photography, and as "meaty" in practical helpfulness as it is satisfying to the eye. Not a book for the man who wants to make pictures by rule and measure and formulæ, although there are all of these, but a book which will give joy and real help to aspirants and advanced workers in pictorial photography who have an open mind and a sense of humor. Especially must the reader have a sense of humor, or he will lose many of the best things in the book—apart from the illustrations, which, by the way, are in themselves well worth the price of the volume.

Mr. Anderson divides his book into six sections: A. *The Medium of Photography.* I. Is Photography a Fine Art? II. How to Approach the Subject. III. The Artistic Quality of the Medium. IV. The Artistic Use of the Medium. B. *The Handling of the Medium.* V. The Secret of Exposure. VI. The Secret of Development. VII. Orthochromatic Rendering. VIII. The Print. C. *Some Artistic Principles of Photography.* IX. Perspective and the Lens. X. An Agreeable Perspective. XI. Composition. XII. Composition in

Photography. D. *Working in Tone*. XIII. Tone and Key. XIV. Values. XV. Emphasis. E. *The Choice and Treatment of the Subject*. XVI. The Influence of Japanese Art. XVII. The Subject in Photography. XVIII. An Essay on Nature. XIX. Sympathy. XX. Impressionism. XXI. Some Essentials of Expression. F. *Some Practical Suggestions on Photography*. XXII. The Rendering of Color into Monochrome. XXIII. Additional Hints on Landscape Work—the Pinhole. XXIV. Some Elements of Portrait Work—Amateur Portraiture. XXV. Artistic Portrait Work. XXVI. Flower Photography. XXVII. Some Suggestions on Architecture. XXVIII. Technical Hints. *Index* (5 pp). But this way of showing the range of the volume is, I fear, likely to conceal rather than reveal the lively interest and attractive note of personality running through its pages.

As an example of the simplicity and directness with which the author treats his subjects, let me quote this paragraph, taken at random from the chapter on "Values." "If the photographer really studies the question of values, he will instinctively turn to indoor subjects, faces in shadow, faces against the light, and so on; and he will find that the values in such subjects depend almost as much on the amount of detail that is visible as on the strength and contrast of light and shade. This brings us back to our original conclusion that truthfulness in the rendering of shadow details plays a very important part in photographic values."

This may be followed, appropriately, by another extract from the chapter on "Artistic Portrait Work." "All indoor portraiture requires a very careful study of the values of shadows, especially the shadows on the sitter's face, so that development may be stopped as soon as there is sufficient contrast between the shadows and high lights; but, of all schemes of lighting, the values in a portrait taken against the light demand the keenest study. Such portraits are often very charming; and, since the modern woman has a habit of seating herself on a window-seat with her back to the light, photographs taken against the light come well within the scope of modern portraiture."

A last quotation from the chapter on "The Print" touches interestingly upon the subject of the monograph in this number of THE PHOTO-MINIATURE. It runs as follows: "Platinotype is at once the easiest and the most difficult of methods. It is the easiest, because the making of the print is so easy; it is the most difficult, because it repeats the faults of the negative with exact accuracy.

"The two bogies which have kept many from adopting platinotype are the bogies of damp and 'floating.' Personally, though I have used platinotype for years, I can remember only one failure from damp, and that was due to the temporary use of an attic with the moisture running down the walls. I have experienced no difficulty in floating my prints, because I never float them."

The whimsical humor of the book, the conversations with Monica and her quaint comments, with all the little notes about well-known painters and photographic pictorialists, must be left for those who buy the volume and read it. The pictures by D. O. Hill, Coburn, Cadby, Demachy, Kasebier, Stieglitz, Day, Steichen, Job, de Meyer, Evans and others, are cleverly reproduced and add considerably to the value of the book.



Orthochromatic Filters. By C. E. Kenneth Mees, D. Sc. 56 pp. With many half-tone illustrations, color chart and index. Boards. 50 cts. New York: Tennant & Ward.

In his earlier monograph on "The Photography of Colored Objects," Dr. Mees explained the theories underlying the photographic reproduction of all classes of objects possessing color. The monograph here noticed forms, so to speak, the practical supplement of the earlier work, dealing exhaustively with the purpose, choice and use of orthochromatic filters. The contents of the book are sufficiently described in the headings of its chapters as follows: I. The Purpose and Use of Ortho Filters. II. The Efficiency of Filters. III. The Adjustment of the Filter to the Plate. IV. The Multiplying Factor of a Filter. V. The Use of Contrast

Filters. VI. The Optical Properties of Filters. VII. The Fitting of Filters. VIII. The Care of Filters. Index.

The value of the book, out of all proportion to its size, lies in the facts that its information is first-hand, being based on years of practical research in this special field, and that is the first and only scientific work on its subject. Since, however, it would be wholly useless to talk about ortho filters for definite purposes without specifying the particular sort of filter required for the securing of definite results, Dr. Mees necessarily refers throughout the monograph to the commercial filters which he has introduced in the English market. This disadvantage will doubtless be keenly realized by American readers, who cannot obtain the filters specified except by importation. Fortunately we have, in the Color Research Department of the G. Cramer Dry Plate Company of St. Louis, headed by Mr. R. J. Wallace, a service very similar to that offered British photographers by Dr. Mees and his associates, Messrs. Wratten and Wainwright, so that the disadvantage mentioned need not be regarded as interfering with the real usefulness of the monograph. The book is one which should be read and re-read by all interested in the subject, but I recommend it especially to commercial and specialist photographers, process workers and others who have to handle difficult problems in color reproduction.



Supplementary to the above note, I may add that Messrs. Tennant and Ward have just received a new shipment of Mees: "The Photography of Colored Objects" (69 pp. Half-tone illustrations. 50 cents). Readers desiring the clearest and most practical information at present available on orthochromatic photography should invest a dollar in the two books and give them the careful study they deserve.



One Hundred Practical Advertisements for Photographic Studios. Designed and laid out for immediate use by

Juan C. Abel. \$3. For sale by Tennant and Ward, New York.

No one, I suppose, will question Juan C. Abel's position as the leading authority on all questions pertaining to the business side of professional photography as it is followed in America. In the publication announced above he supplies the photographer with a series of advertisements for attracting business to the studio, suited for use in newspapers, booklets and other forms of local announcements, and covering all times and seasons. These are so typed and arranged as to be ready for use when wanted, without any necessity for thinking or labor on the part of the photographer. Those who know what it means to think out and plan a "telling" advertisement in the midst of the thousand and one other duties of studio work will appreciate the practical economy of using these hundred ads. at three cents apiece.

BOOKS

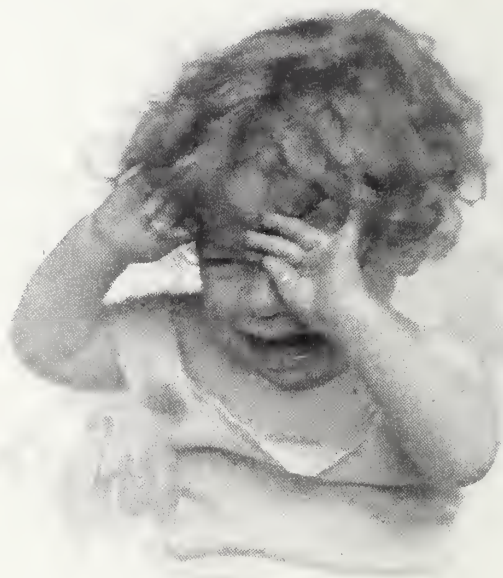
The following books on platinum printing, although all published more than ten years ago, give the individual methods of their authors and contain many valuable suggestions and formulæ.

The Platinotype Process. By W. J. Warren. 88 pp. 50 cts.

Platinotype Printing. By A. Horsley Hinton. Written for the pictorial worker. 92 pp. 50 cents.

The Platinotype: Its Preparation and Manipulation. By Abney and Clarke. Gives full instructions for the manufacture of platinum papers, and deals with the chemistry of the process. 173 pp. 50 cents.

"*The Camera Notes*" *Glycerine Process for the Development of Platinum Prints, giving local control and color effects.* By Stieglitz and Keiley. Illustrated with facsimile prints showing the results. 12 pp. \$1.



A Protest against Early Rising
By O. C. Conkling

The Photo-Miniature

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Handwork on Negatives

In the last number of THE PHOTO-MINIATURE the reader was urged to remember that the print is the first intention and the final end of all our photography, the negative, although essential, being preliminary, intermediate, only a means to the end. In this number, the negative is considered in a special way as a means to the end, and we are to discuss certain ways of helping it to give us better or more satisfying prints.

It is generally understood that much of the technical superiority of professional photography, as compared with amateur work, is due, not only to the greater skill of the professional in his handling of the subject, in exposure and development, but in a large measure to his ability in "helping" or improving the printing quality of his negatives by various sorts of handwork, applied to the negative before it reaches the printing-frame. Retouching, as almost universally practiced in professional portraiture, is a familiar example of this handwork. The introduction of pictorial backgrounds in portraiture, by the skillful use of an air-brush, is a less familiar instance. These, however, lie at the far end of the gamut of handwork, and demand the skill of the specialist. In this monograph we will learn something of the simpler methods, which are applicable in everyday work by amateurs and professionals alike, starting from the point that all negatives, good, bad or indifferent, can be improved as to their printing quality by means of judicious handwork. We are fortunate in

having our information at first hand, the monograph being written and illustrated throughout by Mr. Arthur Whiting, an expert in this field, whose textbook on "Retouching" has passed through several editions.
[Editor.]

Let it be said plainly in the beginning **Cave Canem!** that, although there are few, if any, negatives which cannot be improved by handwork, the reader is not advised to begin to "tinker" with each and every negative he makes, on the supposition that it will thereby be improved. This little book will abundantly fulfil its purpose if it gets the reader into the habit of looking at his negatives critically, and gives him the ability to see their shortcomings and wherein they can be improved or "helped" so as to yield more satisfactory prints. When this ability to "see" has been acquired, then the ability to "do" may be sought, and the methods given here may be applied—with scrupulous care and in moderation—until that expertness comes which recognizes what to do and knows how to do it. Some negatives may require very little handwork: a little emphasis here, a little softening of contrast there; others may call for a great deal of work, very careful work, with skill in every touch. For all we need the seeing eye with judgment behind it, and a knowledge which will produce definite results in the print.

Practice Makes Perfect	If the reader could be admitted behind the scenes and watch an expert retoucher at work on a difficult negative, his most vivid impression would be that skill in this sort of work cannot be acquired without practice. The improvement of a landscape or commercial subject by the methods here given calls for quite as much skill as is required in the retouching of a portrait negative. He would see, also, that the work calls for many curious little tools and a highly developed, personal resourcefulness, together with a patient persistence in getting over difficulties, too minute for description or analysis, but continually coming up before the man who attempts handwork on that exquisitely
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wrought thing—the photographic image in a gelatine film. Hence the beginner is advised first to familiarize himself with the various tools he will need; to know what they are to do, and prepare them himself for their work so that they will not fail him in his need; to take a right pride in his equipment and materials for working, so that he can work intelligently and in comfort. All forms of make-shift, in tools, working conveniences and methods, are likely to prove expensive and result in failure in this special field, which is akin to dentistry and surgery as far as carefulness in small details is concerned. When this familiarity with tools and equipment is acquired, then in his practice the novice should go from the simplest to the more difficult phases of the work, beginning with such subjects as can be handled with pencil and brush alone, and gradually taking up those which need the knife and chemical manipulation. The clouding of negatives—i. e., the working in of clouds on a blank sky—is especially work which calls for thought and skill. Not only must we have certain forms or skies according to the atmospheric conditions and general illumination seen in the negative, but we also need the skill to produce the natural blending of light and shade in the sky which the source and direction of the lighting would have given us at the time of exposure. Similarly, in handling foliage in outdoor scenes, or dress or drapery in portraiture, we must have an accurate knowledge of forms and textures and the way the lights and shadows would naturally fall, or our handwork will be painfully evident and the last state of the negative will be worse than the first.

Practically all the handwork possible on a negative resolves itself into two propositions, viz., the local increasing and the local decreasing of density as may be required. By the ordinary methods of chemical intensification and reduction we can increase or reduce the general density of a negative, or modify its contrasts; but handwork enables us to do this locally and in detail. Therefore, we first determine what parts, if thus dealt with, would produce a more harmonious or picturesque whole, and proceed according to the rule,

Relative
Density the
Guiding Rule

throughout observing *the relative contrast natural to the subject* in each particular part with which we deal.

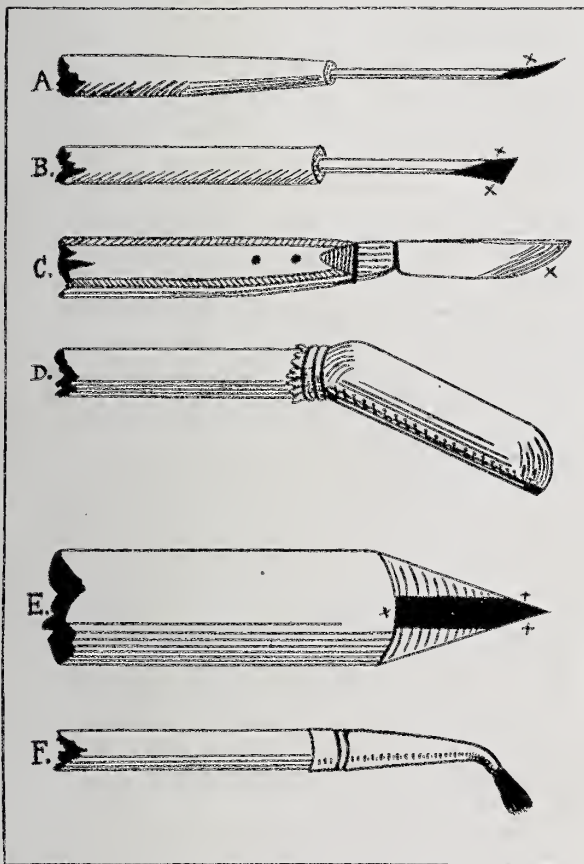
The ordinary retouching desk is not well adapted for this work. The angle at which it rests is too acute, and it is usually impossible to view the entire negative at once, as is necessary for our purpose. First the slope must be inclined at an angle of from 80° to 90° , so that one can work with direct light instead of reflected as is usual in portrait retouching. The aperture in the slope must be at least the full size of the largest negative with which we shall have to work, and either glazed with flashed opal, or provided with an upright screen of thin and unsoiled tracing cloth on the reverse side. The bar on which the negative rests should be easily and quickly adjustable to any height and angle, and a T-square placed on the slope, over the negative, to serve as a rest for the hand.

Beyond the ordinary retouching pencils and conveniences used by the portrait retoucher, these consist of knives, erasers (both putty and ordinary), prepared stumps, dabber and splatter brushes, various solutions and preparations hereafter described, and, if the worker can procure them, an efficient nigrostyle, air-brush, and multirule.

The knives for this work must be prepared for oneself, as those available in the market are almost useless. There are a number of different patterns, but those shown in the accompanying diagrams are all that will be required for the work herein described. See Plate I.

"A" is the stylus knife. This is made by fixing an ordinary sewing-needle in a handle, and after making the point red hot, shaping with a fine flat file, so that one side is made flat and the other beveled to it at an acute angle. The flat edge should be to the left and the angled edge to the right when the instrument is held with the sharp edge to the negative. After grinding this edge on a stone to a razor-like sharpness, harden it by making it red (not white) hot in the fire (the flame of a spirit lamp will suffice) and plunging instantly into cold water.

PLATE I



- A. Stylus knife, made from a sewing needle.
- B. Butt knife, made from a drill.
- C. Re-ground surgeon's scalpel.
- D. Chamois "Plane" spring stomp.
- E. Prepared cork stomp.
- F. Dabber brush.

The parts marked X show where the instruments are specially beveled.

"B" is the butt knife. It is made from an one-eighth-inch or larger flat steel drill inserted into a handle. (See Plate I.) Soften the steel by heat, and file away to shape. The part marked with an "X" is to be perfectly flat on the under side and beveled off at an acute angle on the upper side. Grind and harden as for "A."

"C" is an ordinary surgeon's scalpel which has been reground so that one side is flat and the other acutely beveled towards the edge. The edges of these tools, after being beautifully ground so that they are entirely free from all burs and unevenness, are set on a razor strop, and kept continually edged by stropping after or during work, if this is necessary to keep a perfect cutting edge.

The reader will be wondering why he should make his own knives when there are so many on the market, of various kinds and patterns, which may be bought at reasonable prices. The reason is that the writer, who has had practical experience in knife work for many years, and has both tried and inspected these instruments, has invariably found them quite inefficient for the purposes they are required to fulfil. In some the steel is inferior, in others the shape is incorrect, moreover some are not angled at all, and the rest are angled incorrectly. Hence most professional retouchers who are experienced in knife work either make their own knives, or, buying the ready-made patterns, re-grind them to their own liking. Again, the setting of a retouching knife is a somewhat difficult operation, and this the instrument-maker, not being a practical retoucher, rarely performs to satisfaction.

Stomps are of various shapes, prepared to a silky smoothness always, and varying in size from the ordinary "French," to those having a spreading surface of an inch or more, according to the size of the negative to be worked upon. Two or three should be kept on hand.

A useful "plane" stomp is made as follows. (See Fig. D.) Screw or tie on to a penholder a piece of clock spring bent to the angle shown, and protruding

beyond the end of the holder about $1\frac{1}{2}$ inches. Round and smooth off the end of the steel. Pad evenly with cotton wool, and cover tightly with soft chamois of exceptionally fine and smooth surface. This tool will serve for laying on broad planes of light and quickly covering large areas of film.

Reduction First In first examining a negative, notice the parts which need reduction and attend to these first. Halation and broad patches of density may be reduced with alcohol and erasing powder, for which the following is a good formula: Mix finely prepared chalk, 20 parts; powdered silicate of magnesium, 5 parts; powdered sugar of milk, 2 parts; extra finely powdered quillia, 5 parts. Thoroughly triturate these ingredients in a mortar and pass through a fine sieve before using. Apply to the negative with a tuft of absorbent cotton, with a careful, even friction. It will be safest for the novice to use alcohol alone, as the frictional powder goes rapidly through the film and needs considerable experience in using. Smaller patches, especially of a lineal or specifically shaped character, are best reduced with a gutta-percha pencil (the soft material used by dentists) of rather soft degree, used in conjunction with the reducing medium. Whilst the finest portions, that is those less than $\frac{1}{8}$ of an inch broad, are to be erased with the Butt, Scalpel, or Stylus knife, according to their form and position. Knifework should always come after other methods, and reduction, but precedes pencil-work. This is most important.

How to Knife Grasp the knife lightly in the hand, in the way one would hold a pencil. Let the cutting portion of the knife gently rest upon the part of the negative to be erased, with the back of the blade inclining about five degrees over towards the left hand of the worker. Now, according to the position of the work to be erased, the strokes of the knife will be gentle, "soothing" touches from above to below, and from right diagonally to left. It is incorrect to work backwards and forwards with a perfectly set knife. Be sure to select the right portion of the blade most adapted for the work, and according to

whether you wish to plane over large, or shave over a small surface. Skill in knife-work necessarily depends on practice, but the "knack" comes quickly.

Both the scalpel and the butt have at least two cutting positions of the blade, the one adapted for fine, and the other for broad erasures.

The utmost care and skill is required to prevent cutting away too much of the density. Indeed it is difficult for the expert worker to knife lightly enough in the lighter parts, and considerable practice is necessary to make oneself expert in this particular. It is less easy, too, to fill in with lead parts which have been knifed, and the work is apt to show a kind of channelled or corrugated appearance when finished. Another essential is to have the negative absolutely dry. If it has been long on the desk and subject to the breath it is best to subject it to slight heat to re-dry before working on it with the knife. If the film "picks up" under the knife, it is damp. If the knife scratches, it is either improperly set or held wrongly, and, if the film is too deeply erased, the knife is used too heavily.

Chemical Reduction Another method of local reduction which is sometimes useful is the chemical one. Make up the following solutions: A. Persulphate of ammonium, 20 grains; water, $\frac{1}{4}$ ounce; glycerine, to make up 1 fluid ounce. B. Sulphite of soda, 1 dram; water, to make up 1 ounce.

Now provide three large camel's-hair pencils and a fine wooden or bone rod, the end of which has been covered ("down" side outwards) with surgeon's lint. Having placed the negative upon a *sharply reclining* retouching desk, viz., at an angle of about 30 degrees, select the parts to be reduced and brush over these with plain water, taking great care to go exactly to the limits of the parts to be reduced.

Do this two or three times, but avoid letting the water run over the limits into the adjacent field. Then carefully remove all superfluous water with the brush, and with a fresh brush apply solution "A" exactly over the same parts, continually renewing the action and rotating the negative if necessary to avoid the solution gravitating to the lower end. Now apply the padded rod

charged with more "A" solution to the parts needing greater reduction, using slight friction and gentle—very gentle—pressure. Alternate your action between brush and rod until the parts are rather more reduced than necessary, as the film intensifies a little in drying. The process is now continued by brushing "B" solution (using the third brush) over the parts reduced and finally all over the negative. Let the action of "B" be allowed to go on for about five minutes and then thoroughly wash and dry.

With some films a yellow stain is produced during the operation of the "A" solution, but this disappears during the washing after "B" has been used. Other methods of reduction of density, local and general, will be described further on.

Our next step will be to apply re-
Filling In touching medium to the negative and pencil over the parts which need leveling (where the knife has operated too unkindly), using Hardmuth's No. 2 or an "H.B." pencil of exceptional quality. Also other parts which need more work, after the style of ordinary retouching, may be dealt with, using the pencil only. The retouching stroke, advised for a clean, grainless effect, is produced by making a thin, continuous curved line, without lifting the pencil from the film until the part needing density has the smooth even tint required.

Spotting with brush and color can be
Spotting proceeded with now or after the rest of the work is done. Regarding spotting it may be well to say a few words. Let the color used match that of the film by a judicious blending of India ink and Payne's gray together. Charge a No. 1 sable spotting-brush with the color only at its lower third or half, and that not of a too liquid character. Rotate the brush on the palette to obtain an even and fine point, and apply the brush and color in such a steady and gentle manner that only sufficient pigment is deposited to bring the density up to the surrounding parts of the film. Be zealous not to let the color encroach on such parts, and, in places which are too large to be easily covered, put on a wash of color, allow this to dry, and

then stipple a layer of color on top of this. If too much color is laid on, remove with another brush just moistened with water.

Should the film be torn away, coat the part with a strong solution of gum arabic, allow to thoroughly dry, apply retouching medium, and pencil away the defect. Ordinary prepared gum, such as is used for sticking purposes, contains an objectionable acid, and must not be used for this work.

**Varnishing
Plates and
Films**

After the negative has been retouched upon the mediumed surface, it requires to be varnished. If it is a film, have ready the following solution: Gum dammar, 1 ounce; benzoline, 10 ounces. Pour some of this varnish into a porcelain or glass tray (it will dissolve rubber dishes). If the film is of small size, a glass tumbler will do. In this immerse the film bodily, and pass to and fro two or three times, then hang up with a pin to dry, having the end of the film which leaves the dish last, hanging downwards. Remove the dependent tear of varnish from the film with blotting-paper. The benzene (benzole) of the drug-stores can be used in place of benzoline if this is not readily obtainable. Benzene is inferior to the benzole or benzoline obtainable in England, inasmuch as the varnish is slow in drying unless an exceptionally good sample is obtained. And it will often be necessary to repeat the process, drying the negative if desired to save loss of time by the aid of heat. As both varnish and film are very inflammable, great caution must be used in doing this, so do not use the varnish in the same room with a naked fire or light. The film itself, when the varnish has ceased dripping, may be held from a foot upwards over a naked light which does not throw out more than a gentle heat. When the film is dry, rub the fingers in a little powdered resin, remove all excess and grits, then, using the finger tips, softly matt the surface of the varnished film and dust lightly with absorbent cotton. The surface is extremely delicate and needs handling with greatest care. For glass negatives just varnish in the usual way with matt or ground-glass varnish. Glass negatives present by far the best surface for working

upon, the working up of a film negative being more difficult in various ways; so that the beginner must exercise more patience in dealing with them.

Retouching Probably next to portrait negatives,
Landscapes landscape negatives require the most attention at the worker's hand, although usually they are totally neglected in this respect. Speaking of the profession, this is probably because handwork has hitherto been entrusted to a retoucher, whereas every large studio should have a department entrusted to the care of a competent negative artist, whose business should be to study all after treatment of negatives, including reducing, intensifying, staining, retouching, and all other handwork whatever. I add "staining," because photographers have not yet realized what the color of the light transmitted to the paper will do in improving the print. And this can be done either by staining the film itself, the varnish applied, or by printing through colored glass. Properly used, this is a most useful aid in controlling either flatness or harshness, and also in avoiding solarization. Printing through blue or violet glass or stained film will reduce harshness and solarization; whilst printing through green glass gives a desirable vigor to negatives inclined to softness, which is particularly noticeable when using platinum paper. Printing through pale yellow glass decidedly improves a flat negative or one that is fogged. Some of the most charming and perfect prints I have ever seen have been produced commercially through colored glass.

We will now assume that we have a landscape negative before us, and if it is desirable the film has been stained, or arrangements made for its printing through colored glass, varnish, or film. Probably it was impossible to take the view in sunlight, or dense sky occupies the place where we should like to see beautiful clouds, so that it will only print a white patch.

Clouding Clouds can be printed in by what is
Negatives called "double printing," but then it is ten chances to one that we shall possess a cloud negative which is suitable to our subject and its lighting. Hand work will give us just the effects desired if discriminatingly managed.

To obtain what we want, proceed as follows : If the subject has the light behind the camera and the view has a wide angle expanse of light, we must reduce the parts where we wish the sky to appear, and also the shadow parts of the clouds. This apparently intricate task is accomplished by one of the above described methods for reducing density. Or, if the worker is not intrepid enough to attempt this method, a simpler way is to reduce the whole sky by the glycerinated persulphate way already given on page 360, and then proceed as will be shown later on.

It sometimes, though rarely, happens that this form of dense sky occurs in pictures taken almost facing the light, and then it is easiest to put in a set of clouds with the light behind them.

Cloud Forms As to the precise form to make the clouds assume, it must be said that, with so many beautiful and varying mobile forms available, it will be impossible to depict more than a very few examples, and it must be left for the reader to amplify these from his observation and sketch memos of natural forms. In general, then, observe that in reducing, if the sun was behind the camera, you will reduce such parts as are to represent the sky and the shadow parts of the clouds ; but, if the sun is in front of the camera, then reduce for the clouds and leave the sky to look after itself. But supposing we have a negative with a sky which prints a tint instead of white, as in the one spoken of above. Here we have a type which is ideal for working in clouds, inasmuch as it needs no reducing, the shadows being presented by what is really an optical illusion, though not, to quote a paradox, delusive in effect.

On such negatives we work on the varnished film, using the stomp in drawing the clouds, putting in the high lights and semi-tones therewith, and for the shadows leave the film bare (over which we afterwards rub reducing powder, given on an earlier page), intensifying the effect by pronounced stomp work underneath, sharply delineated on the part against the cloud's shadow and graduated away to nothing at the other edge. We must observe that, to introduce the correct form of



Cloud Forms, drawn in negative

1. Nimbus clouds, lighted from behind and to the right.
2. Cirro-cumulo-stratus clouds, lighted from the front and to the right.
3. Cirrus clouds, lighted from the left.
4. Stratus clouds, lighted from behind.
5. "Scud" clouds, lighted in front and to the right.

PLATE III



Clouds Forms, drawn in negative

6. Cumulus clouds, lighted in front and from the left.
7. Cumulus clouds, lighted from behind and to the right.
8. Cumulus, cumulo-stratus and stratus clouds, lighted from the right and underneath for the cumulus; behind and underneath for the cumulo-stratus; and from behind for the stratus forms.

clouds, the worker must carefully note the lighting of the subject, and either apparent, or desired condition of weather we wish to introduce. We can introduce the effect of sunlight in a gloomy picture easier than the appearance of gloom in a sunlit subject, as the latter would require in most cases a large amount of hand-work. The effects of wind, tempest, rain and calm are all imitable when we have mastered the use of our tools.

For To differentiate: For a subject to
Example portray coming wind and rough weather, use the cirri form of cloud; but for rain apply the cumulus bank clouds low down on the horizon, with little tufts of clouds here and there. Again, to make a representation of a southwesterly breeze at sea, and at night, insert a moon with halo around, sketch cirro-stratus clouds in shadow, represent the reflection and action of moonlight elsewhere, and you have your desired effect.

Cumulo-stratus clouds are seen in snowy or showery weather, whilst genuine stratus clouds occur in the after part of the day (with the light more or less behind them), and show fineness and calmness of weather.

For genuine storm effects "scud" must be introduced; whilst for heavy and gloomy weather, with rain effects, the "nimbus" form of leaden sky is necessary.

Of course, there are innumerable combinations of cloud forms in nature, and the artist will gain much advantage from direct observation; indeed, his best effects will be obtainable only in this way. Again, some clouds are very slow in motion (like the stratus), and others rapid (like scud); so that, if we have depicted rapidly moving objects in our picture, we can aid in making a more lifelike effect by portraying clouds, the nature of which is to be rapid in motion; and the reverse for calm and placid effects. The various cloud forms are shown in Plates II and III, being here represented in negative, i. e., as they are to be worked in on the negative on the back of the film.

Local Another method of putting in the
Intensification lights and semi-tones in a negative is by actual intensification of the film itself. This, of course, must be done before the negative is medi-

umed; and, in fact, it is possible to put in the whole sky by this method. First, the parts of the view needing reduction are treated with the glycerinated Farmer's solution "A," as given below. In order to insure that the edges of the parts reduced in this way will not be harsh, but sufficiently soft for the simulation of cloud effects, it is advised to have at hand a second solution "B," as given below, so that the margins can be more gently reduced. It will be well to provide a separate brush for use with each of these reducing solutions.

Prepare the following *Stock Solutions*: No. 1. Ferri-cyanide of potassium, $\frac{1}{2}$ ounce; hot water, $1\frac{1}{4}$ ounces. Dissolve and add glycerine to make 5 fluid ounces. No. 2: Hyposulphite of soda, 1 ounce; hot water, 2 ounces. Dissolve and add glycerine to make 10 fluid ounces. These solutions must not be used until cold. To make the "A" solution referred to above, mix 1 part of Stock Solution No. 1 with 2 parts of Stock Solution No. 2. For the "B" solution, mix 1 part of No. 1 with 9 parts of No. 2.

This preliminary local reduction, if needed, being completed, the negative is thoroughly washed and well drained so that the surface is free from superfluous moisture. It is now ready for the local intensification of the parts forming the high lights and higher halftones of the clouds. Perchloride of mercury, a very poisonous chemical, is most suitable for this purpose if used carefully according to the method here given. Prepare:

Perchloride of mercury, 48 grains; glycerine, 6 fluid drams; water, 2 drams. The mercury dissolves slowly on agitation. Do not heat the mixture or the mercury will be reduced. The solubility of perchloride of mercury is about one in sixteen in water, two in three in glycerine by weight, and one in four in rectified alcohol. With this bleaching solution ready for use, the high lights and half tones of the cloud forms are put in with a brush, the bleaching action being carefully watched. Some judgment is necessary to know how far to let the action go. Begin with the highest lights and pass on to the lesser ones, observing to play a little with the edges of the patches to avoid getting harshness of outline. When the highest lights are bleached through, they have

reached the limit of intensification. The plate must now be washed thoroughly and blackened with a solution of liquid ammonia (ammonia fort or .880) one part, water three parts. It is finally well washed and laid aside to dry.

For the benefit of the curious I will state that Farmer's ferricyanide solution is recommended here for the preliminary reduction instead of the persulphate reducer given earlier, because the latter provokes stains by the subsequent action of mercury, whereas the ferricyanide solution does not. In fact they are like two brothers; the bigger (the intensifier) can interfere with the work of the smaller one, but the moment the latter (the reducer) attempts to rectify the action of the greater, trouble follows. Stains are produced by using ferricyanide over or after mercurial intensification. Reduce first, intensify later.

General Before leaving this subject of intensi-
Intensification fication, it may be as well to speak of the best way of intensifying the whole of a negative where this is desired. Some of the intensifiers on the market are dependable, but others are very disappointing, and none are equal for general work, in my opinion, to bichloride of mercury. This is the same thing as perchloride of mercury; our friends, the chemists, are fond of names. The formula here given will be found equal to most requirements. Use it strictly according to directions and it will become your favorite intensifier. It is especially suitable for use with roll-film negatives.

A Reliable Prepare the following solution: Bro-
Formula mide of potassium, 30 grains; perchlo-
 ride of mercury, 2 drams; hydrochloric
 acid (exactly) 10 minims; distilled water, 10 ounces.
 Dissolve the bromide in the water first, then add the
 mercury and finally the acid.

It is advisable to always filter or decant this solution before use. It can be used repeatedly until exhausted. Store in a poison bottle, and label "Mercuric Intensifier; poison!" Three grains of mercury will kill something much bigger than a dog. This formula must be made up exactly; the old slipshod way of making up

the solution is responsible for most of the evils the intensifier is heir to. The wherefore is, mercury dissolves slowly, not sparingly, as some say, in water; bromide of potassium aids its solution (so does ammon. chloride); mercury tans the gelatine film, and an exact quantity of hydrochloric acid prevents this, but one or two minims too much brings on other evils. Distilled water is also important, so is decanting or filtering. Observe these details and make no acquaintance with failure in getting the result desired.

Wash the plate to be intensified *thoroughly* to free from all soluble chemicals, place it in a porcelain dish, and do the work *in very subdued daylight, or better, artificial light*. Many intensifiers are apt to fog or stain when used in ordinary daylight. This explains the veil or fog seen in most intensified negatives. Determine whether you want to intensify the shadows only, all parts equally in proportion, or to decidedly increase the contrast of the whole. For an over-exposed negative we must do the latter, for a thin, under-exposed the former, whilst for a thin normal negative increase the contrasts equally in proportion.

Having decided, act thus: For intensification of shadows in greater proportion than high lights, pour on the fluid and stop action *immediately* the surface begins to whiten, and plunge under the tap. To increase in equal proportion, continue until the half-tones are bleached at the *back* of the plate or film, but the high lights still left black. To increase strongly the contrasts of the whole negative, bleach all parts through. Note that if a negative has a thin fog from the action of light before intensifying, it will be best to bleach through all parts.

Rock the dish constantly during bleaching, wash under the tap most thoroughly, and pass a tuft of absorbent cotton over the film once or twice to remove any insoluble mercurial compound.

The negative can now be blackened by immersion in a one-in-four ammonia solution, i. e., 1 part ammonia .880 to 4 parts of water; but if only slight intensification is desired, use a ten per cent solution of sulphite

of soda. Hydrokinone developer also blackens and gives a large amount of contrast, but there is a tendency for a pinkish stain to form.

Foliage and Verdure If it is desired to strengthen the foliage or verdure in a view to give local emphasis, proceed as follows: When the detail is sharp, use a No. 2 pencil, or a No. 1 sable brush and spotting color; but when far away, the dabber brush (Plate I, Fig. F) is of service, especially where large surfaces are to be covered. Cray (gently rotate) the brush upon the spotting palette until nearly dry, as when too damp it makes ugly dabs instead of marks perfectly shaped or separated. The brush, which will need recharging with color every four or five touches, should be used with an alternate semi-rotating motion, to prevent the marks occurring at the same angle. Further touches for the distance must be touches and no more, whilst the nearer the part, so bolder and longer strokes should be made. Do not make these of even density, but some light, others heavy, as shown in Plate IV, Fig. 5. If, however, the distant and near foliage are both flat, whether the negative is over- or under-exposed, it will be wisest to bring out the necessary relief with the stomp *before* working with brush and color.

Foliage Forms In strengthening foliage, attention should be given to the nature of the trees depicted, and touches which will retain this form and convey to the eye of one who understands botany what particular kind has been photographed. The different touches are shown in Plate IV. For instance, the horse-chestnut (Fig. 8) has a bold foliage, the lights of which may be strengthened by long, broad, angular marks, whilst the ordinary chestnut has a similar but not so forceful appearance. The fir also (Fig. 2), together with the ash, may be dealt with long, angular touches, but of narrower proportions; whilst the oak (Fig. 3) requires marks angular and sharp, but short and ill defined. In the poplar (Fig. 10) the touches are rounded and vertical, whilst those of the elm (Fig. 4) are rounded and oblique. The touch for the willow (Fig. 9) is similar to that of the poplar,

PLATE IV



Handwork Touches—partly in negative

1. Cumulo-stratus clouds lighted from the light; 2. Fir touches (enlarged); 3. Oak touches; 4. Elm touches; 5. Dabber brush touches; 6. Silver birch touches; 7. Splatter flowers; 8. Horse-chestnut touches; 9. Willow touches; 10. Poplar touches; 11. Reeds and grasses; 12. Splatter effect; 13. Water bird; 14. Alphabet and figures, reversed.

but in long, drooping, and separated clusters. Strokes for the beech are short, oblong, and mostly semi-horizontal; whilst those of the birch, and particularly the silver birch (Fig. 6), known by its beautiful silver-white bark, are practically nothing but rounded dots placed in groups.

Bear in mind that pencil- and brush-work can only represent or increase the lights and half-lights of the foliage, hence you cannot make the same formation of touches used by an artist when painting, but only the lighter part of them.

**Helping
Verdure** Distant verdure, if it needs anything at all, it will be accomplished with the stomp alone; but the nearer herbage will be helped with the dabber brush (Plate IV, Fig. 12). Foregrounds may be beautified with reeds and grasses (Plate IV, Fig. 11) using knife, pencil or brush; and flowers splattered in, and the foliage and verdure suggested with pencil-marks. When using the pencil for improving foliage and verdure, let the point of a No. 2 or Hardmuth "B" lead be sharpened to a flat chisel-shaped point so that you can put in fine or broad touches at will. The boughs of the trees will often need strengthening, as also their trunks; and parts which strike the eye too detractingly may be subdued with the knife, or by other local reduction before varnishing. Many improving touches can be added in this way.

Water The waters of rivers, lakes and sea, usually can be greatly improved, both by knife-, pencil-, and brush-handwork. Large patches of reflections, if too vivid, should be lightened with reducing powder, and horizontal shadows are often of service when knifed in. Also, when clouding a negative containing a more or less placid sheet of water, the reflections of the lights and shadows of such sky-work must be added, or the sky-work will "give the show away." If the camera has been placed near the edge of the water, the reflection will be more sharply mirrored than if the water is some way distant. Then only expanses of clouds will throw light and shadow, and that only if they intercept the light of the sun from the water itself.

Movement frequently occurs amongst **Animal Life** animals when photographed, so that the results are very disappointing unless the movement can be knifed away in the negative and the anatomy replaced with knife and pencil. The reader will repeatedly observe how very necessary it is to examine the whole negative in detail whilst in the early stages of work, before medium is applied. Sometimes a view appears lifeless and desolate, when a bird or animal, rightly placed, would make it more interesting. A little familiarity with drawing, and some dexterity, will enable you to *sketch* them in on the negative with knife and pencil, and so *photograph* them on to the print. See water bird, Plate IV, Fig. 13. It is really a very easy matter to put into a blank or clouded sky two or three sea-gulls or swallows on the wing, and their appearance is realistic and welcome. With these additions I once delighted a professional who asked me to work up some spoilt (but the only obtainable) views of his homestead and homeland; the bits of life added made it doubly like home to him. And the river over which he had so often boated in his boyhood days had a boat charmed into the negative, which printed as if plate and lens had seen that craft as well. But this is mentioned only as suggestive of possibilities when the necessary skill is attained.

Atmospheric Effects Another thing to consider is atmospheric effect. Sometimes we get too much in a negative and at other times too little. I have lately seen some prints from what must have been really splendid negatives of scenes in the southwestern states, where hills and mountains, which must have been many miles distant, looked as if they were only just over the way. Whilst technically it was right to duplicate this effect in the print, it was artistically and naturally incorrect; *losing the impression of the vastness and lonesomeness of the scene* before the critical but unsympathetic eye of the lens. The human eye sees distant hills *as distant*, the clearness of the air lending but vastness to the scene.

The lens, perfect as it is, is soulless, and sometimes we must use hand-work to introduce effects which the

eye and lens could see, but which lens or plate obliterated. The stomp (Plate I, Fig. E) will readily create distance for you, only work it over the distant and not nearer parts, whilst, on the contrary, to produce a clearness which is lacking (in cases where the haze has been too great), it will be advisable to keep back the nearer parts in the same way, or by the use of what is known amongst old hands as "yellow putty," or ground-glass varnish; and in addition, to sharpen the distance by the skillful use of reducing powder, gutta-percha pencil, and lead-pencil work.

Yellow putty is a mixture of linseed oil, whiting, and powdered gamboge, worked up by hand before a fire. It should be of consistency of ordinary worked putty, and kept in moist condition by storage in an air-tight tin. Its use presumes a glass negative. For use, roll the putty over the *back* of the negative in the form of a tint, and with a handled needle outline the parts which you wish cleared away. Then, with the blade of a knife and a piece of rag, clear away the parts not wanted. The depth of the tint so secured depends on the amount of gamboge used in preparing the putty.

Ground-glass Varnish Ground-glass varnish is a fine grade of matt varnish, and is flowed over the back of the negative, drying instantly, with a ground-glass (or matt) surface. To be of real advantage, the ingredients must be of the purest quality. If a good commercial sample is obtainable from the dealer, it will serve our purpose.

A reliable formula is as follows: Gum sandarac, 4 drams; gum mastic, 1 dram; ether, s.p. 720, 5 ½ ounces. Powder the gums and dissolve in the ether; and, when dissolved, add ¼ ounce to 1 ½ ounces of pure benzole (i.e., benzene), according to the coarseness of the grain required. The more benzene used, the coarser the matt or grain and the more opaque it becomes. This varnish dries very quickly, and, whilst still damp, the worker must quickly knife away the parts desired to be left clear, as it dries hard and is difficult to remove afterward. It can be stained so as to produce a more non-actinic media by adding a little powdered gamboge or iodine or any suitable dye.

Almost all negatives of architectural subjects can be improved by hand-work, as it is seldom that the conditions are such but that one fault or another is produced. Sometimes it is a lack of sharpness in some particular portion, as the angle to be covered is often very great; or it may be that the negative lacks brilliancy and sparkle, owing to the impossibility of photographing the object in sun-light.

Of course some architectural work is best taken without the sun shining on it, such as pieces of carving, or other relief work where it is desired to reproduce the pattern accurately. Here the sun may cause most unsightly shadows to be cast, and this is undesirable; but the majority of this class of photography is best accomplished in the sunlight wherever it is possible. And here is the point, if you have not got sunlight, hand-work will enable you to produce the effect of it, and in cases where it is undesirable, hand-work will enable us to give the brilliancy of sunlight without its unsightly shadow effect. It is also possible, but very tedious and difficult, to give a picture taken in sunlight, the effect of one taken without it. This is seldom wanted.

For architectural work the photographer should provide himself, in addition to the other usual tools, with a ruler, parallel square, a draftsman's pen, and either a retoucher's multirule, or one or two French curves, obtainable at artists' supply stores. To begin: First remove any halation defects from the negative by one of the reducing methods already described, and reduce (preferably with absolute alcohol alone) portions which will print too white, as seen from a rough proof, which should always be provided beforehand as a working guide. The next step will be to knife objectionable details away, and by the same means increase the depth of linear shadows. The latter is especially necessary if it is desired to produce a sunlit effect, and is best accomplished by long, smooth, yet decisive, sweeps of the knife, which will need practice to attain.

Sunlight Effects

Regarding this suggestion of sunlight effects few directions are necessary. Judge, by looking at a negative, where the sun would be, or, if it is apparently behind the

building, decide where you will represent it as being. The location of the lights and shadows are to be arranged so that they represent the sun as sending rays from a given point; hence the perspective will be dependent upon the height and declination of that point, and further allowance made for the abutment of one piece of architecture above or beyond another. It will be seen that this is the work of an artist who appreciates the values of a double perspective, and mathematics; so that the tyro will not be able to get more than the mere suggestion of this effect. It is a good plan after having mediumed the whole negative, to outline the proposed alteration with a fine, hard pencil. If it appears impossible to obtain sufficient depth in the shadows by introducing lights only, the wisest course is to reduce the shadows of small degree by means of the gutta-percha pencil, and mere lines with the butt knife or scalpel, the broader surfaces being subsequently reduced by friction. That is to say, the lights and shadows are leaded over after varnishing, and the latter erased with reducing powder. The effect of this erasure is remarkable, and care has to be taken that it is not overdone. I have too often known fairly intense parts of a negative to print black after removal of the lead by means of erasure or slight application of the knife (without going through the varnish), and can only assume that the surface, being microscopically further removed from the printing surface than the surrounded leaded portions, in some way mirrors the light upon its higher glazed surface, and so causes a kind of local fogging of the printing paper; anyway, it is a matter of great inconvenience. When the negative is varnished, it is worked up for the lights, first with stomp and later with pencil and brush. The parallel, straight-edge, square, and curves are all useful; as also is a piece of paper to help the worker in clean-cut work with stomp and pencil. The sky will, of course, be either clouded or blocked out, as given below.

This is of service when we wish to
Blocking Out hide buildings so as to give greater distinction to others, or for removing any objectionable object in the view. A mixture of Indian

red and Payne's gray is useful for this purpose, and Brunswick black, or any good opaque, answers the requirements very well.

If it is a sky that is to be removed, it is safest to turn the negative upside down, and start working from the center of the negative downwards and toward the sides. The parts are first sharply and evenly outlined. When working over irregular outlines, use a brush; if working along lines, a draughtman's pen and ruler are preferable, and round curves such as domes, etc., often a French curve, or a multirule can be made to fit in so as to give a smooth, clean finish to the work, not so easily obtainable by the hand alone. It is not necessary to work a band of opaque more than about three-eighths of an inch wide, as the back of the negative is to have a piece of non-actinic paper gullied over it, but cut away so that it excludes all light from the parts to be blocked out, without interfering with the illumination elsewhere.

Negatives of interiors are dealt with in a similar manner to exterior architectural subjects. Usually there is halation to be removed around the windows or artificial lights. It will be necessary, in bad cases, to do this by the powder method, and where we have to deal with stained-glass windows, to take the reduction far enough to allow the stained-glass work to print sufficiently deep by the time the rest of the print is ready. After this reducing, the leading is further knifed away, and the imagery brought out in relief after varnishing, by means of pencil-work. Harsh lights will need to be reduced also. Table-cloths are better rubbed down with alcohol alone, but for masonry the powder reducer is more effectual. Use great care not to work in a patchy manner, for there is both art and science in rubbing down, and it is easier to do it in the wrong way than in the right way. With some interior negatives there will be found blurring here and there, caused by the passage of people, etc., to and fro during the long exposure necessary with such subjects. This, when obtrusive, must be removed by the use of the knife and gutta-percha pencil. After varnishing, stomp up the heavy shadows, and then, with a finer

PLATE V



Examples of Alterations

By Arthur Whiting

See page 380. The reproduction does not show so harsh or so hard in the photograph as in this reproduction.

stomp, bring out the more delicate half-tones, which would otherwise be buried in printing; finishing off with pencil-work as may be advisable.

Difficult Alterations Alterations are more frequently desired in portrait negatives than in landscapes.

They are, in either case, usually of a difficult and tedious nature, and of such a character that only the most skilled workers will be able to successfully accomplish the change. Of course, it is easy enough to reduce a waist-line or remove superfluous hair, but it is not so easy to remove an entire figure, or take off a cap and put some hair in its place.

A Head from a Group For instance, Plate No. V represents one of the latter class. This person unfortunately perished in a fire, and the

only photograph of her was a yellow, scorched piece out of a group, as shown, mounted on a thick piece of cardboard. The picture reproduced is much enlarged. The second print shown was obtained by stomping in the shoulders and draperies, and knifing and penciling the details both in and out; as, for instance, removing the cap and replacing it by hair. The work, which took two or three hours to accomplish, gave the utmost satisfaction. [The reproduction does not do justice to Mr. Whiting's original.—Editor.]

Landscape Negatives Generally speaking, with landscape or view negatives, it is merely desirable to delete some inartistic figure, or else to

introduce a figure not included in the view. In the former case you will knife the film down to the density of the surrounding parts, and supposed parts; and then, by pencil-work over the rest of the image the obnoxious figure can be made to completely disappear. Some difficulty may be experienced in judging the density of knife- and pencil-work, inasmuch as the film may be a different color on top to what it is underneath; and also the color of the lead not match that of the film.

Introducing a Figure When placing figures in a negative, the easiest plan for the inexperienced is to draw the figures in positive on a piece

of blank paper, putting in the light and shade as required. If the negative is dense, do it heavily, and if

PLATE VI



Examples of Alterations
By Arthur Whiting

The right-hand figure, reproduced from the print shown at the left, is much softer and more pleasing in the actual photograph than in this reproduction. Page 383.



Portrait
By O. C. Conkling

thin, then lightly. In fact, do it so that it is of the same density as the negative by transmitted light. Having drawn the figures, stick the paper on the back of the negative, and knife the negative, and pencil or paint it until the part over the figures is one even tone. This is the easiest way for the inexperienced. The skilled retoucher, however, will take a specially made negative of the figure to be introduced and, with knife and other tools, insert the film into the negative so that the addition cannot be detected. It is possible to make any alteration in a negative; in fact, I have never yet had an alteration put before me that I felt unable to accomplish, from the alteration of a brick-walled back yard into a beautiful garden, to the disrobing and re-robing of a lady, as shown in Plate VI. All that is wanted is to be accomplished by the skillful use of the tools described and patient endeavor.

Introducing There are more ways than one of do-
Backgrounds ing this. The technical way is to block out the background on the negative, and print therefrom. Then, with a sharp knife or pair of scissors, cut out most exactly and critically the printed part. This is then to be stuck over (or if the negative must not be injured, merely laid on) the film of a negative suitable for the background desired. By means of combination printing; i. e., printing first from the one negative and then carefully adjusting the print over the other and again printing, the picture is made. Unless juxtaposition (or register) is exact there will be considerable spotting necessary on the print.

But the desired background is not always to be found among the photographer's stock of negatives, and then we have to be resourceful. There are other ways of making what we require. One method is to draw, either with stomp and lead, pen and ink, pastels, or brush colors, the background desired. It is best to do this by using materials that make the picture the same color as that of a negative film. The subject (which may be drawn of larger size), is then copied and used as above by the combined printing process. Another way is to make the sketch as indicated, but of the size the finished negative is to be. Take a perfectly finished

print of the subject to be printed in, and cut it out most critically. Then paste it on to the sketch in the right position. Having done this, strengthen with brush and colors all parts of the print likely to suffer by being reproduced, and bring out detail where wanted. Next, work in the shadows which would be cast by the figure. The idea as to shape, size and intensity may be gathered from the original negative. Having finished the handwork, damp the back of the board on which the sketch is made and pass through a rolling-press to sink the image. If you are not fortunate enough to possess a rolling-press, lay the sketch upon a perfectly smooth surface upon which another sheet of cardboard has been placed; borrow a flat-iron from the domestic quarters, and at a gentle heat iron over *the back* of the sketch. The latter should be first well damped, and allowed to dry somewhat before ironing.

You will now copy this sketch, using a slow plate and a hydrokinone (not metol-hydrokinone) developer. This second negative will need hand-work, slightly with the knife, but more with stomp and pencil.

**Working on
the Negative
Direct**

A further method of introducing backgrounds is to sketch them on the negative itself; but as the work has to be done *in negative*, this is by far the most difficult method of all; and yet, for some purposes, it is the most desirable. The shadows are, of course, put in with reducers, knife, powder, chemicals, etc.; and the high lights with the pencil, stomp, and brush, or air-brush. Difficulty is experienced when one has to remove an awkward and unsightly background in accomplishing the introduction. The easiest method of working is to sketch the background on bank paper and proceed as told under "Alterations," page 380.

The artist must be careful to observe three things: (1) The sketch must be in correct perspective. (2) The keeping of everything *in negative*. (3) Lighting the subject harmoniously with the unaltered portion.

**Another
Method**

There is yet a further method of putting in a background which is perhaps a superior way to any of these ways. The original negative is first blocked out as for combi-

nation printing, and from this a perfect carbon transparency is made. This can be either upon plain, gelatinized glass, in the usual way, or upon a fogged dry-plate which has been developed to a semi-tone, fixed, and thoroughly washed. Thorough washing may not be essential from a chemical standpoint, but it is decidedly so when one has to consider the subsequent knife-work, for a badly washed plate will not "knife" well. Upon the surface of this transparency the scene is sketched, the half-tone of the dry plate not only enabling us to get denser high lights, but also saving an immense amount of work over half-tone surfaces. In fact we have only shadow and high-light work to do, the semi-tones being left after knifing in the shadows. But supposing the worker is skilled at carbon work, yet quite unable to do this difficult—it is difficult—piece of hand-work on the transparency; he will be able by printing from a separate negative of a suitable ground (as in combination printing) to transfer his print on to the transparency and thus procure a positive with the background introduced.

He will, however, have to see that the registration of the two prints is perfect. There are various ways of doing this, perhaps the simplest being as follows: Let both negatives be fixed in their respective frames so that the left-hand and bottom edges are in actual contact with the rebates of the frames. Cut both pieces of the carbon tissue exactly the same size—cut them together—and remove an oblique piece from both top corners whilst laying together, tissue side to back. See that both pieces are cut the same way of the paper, as, when wet, carbon tissue stretches more one way than the other. In printing, lay the left-hand and bottom edges of the tissue exactly over the same edges of the negative. Then, after squeegeeing down the first piece on the glass support (a temporary support is unnecessary), and before developing, mark with a diamond on the back of the glass the position of the oblique marks on the tissue, having first placed the latter so that the left-hand and lower edges are exactly registered with the edges of the glass support. After developing, allow to become partly dry, then (using a camel's-hair pencil) brush over

the printed portion with: formalin, 1 part; glycerine, 5 parts.

After one or two minutes, remove to a rapid flow of cold water. This will protect the image during the second developing without over-hardening the support. The second tissue will now be easily registered by aid of the left-hand and bottom edges. These latter may be considered unnecessary, but it is possible to have a print apparently in register both vertically and horizontally, and yet out of register obliquely.

Titling This is a job which falls to the lot of
Negatives every commercial photographer, and, although very tedious, is not such a hard task to those who are accustomed to careful writing. As usual, there are several methods of procedure, the one that is the easiest, and producing the best results, being that of merely printing the title on to some transparent portion of the negative with the aid of one of the naming outfits on the market. These little appliances, which various makers supply us with, are so effectual, and save so much time, that it is a wonder that commercial firms so often fail to make the small investment, and do not use them more extensively. The poor assistant wears his eyes out putting in titles by hand when he might be more profitably employed. But, for the amateur, I will give the directions for hand-working titles.

Select a transparent corner of the negative, draw faint parallel lines the distance apart you wish the size of the letters to be. Then, with red sable brush and india ink, commencing at the right hand, write the letters backward, working toward the left.

On Plate IV I give the form of letters when written reversed, so that you can easily copy these. The effect will be white titles on a dark ground. If you are unable to master backward writing then take a slip of plain gelatine tissue, or sheet isinglass, draw your writing on a piece of paper, lay it under the gelatine and write on this. Then having mediumed the corner of the negative where the title is to be, immediately lay the strip of gelatine, writing side down, upon the negative and press firmly into contact. The result will be the same

as by the other method. A still simpler method is to write the title by typewriter on the thin sheet gelatine and attach this direct to the negative, reversed, of course.

A word about the illustrations will end our discussion. These are necessarily crude in reproduction, owing to the fact that the halftone process shortens the gradations and emphasizes the contrasts too sharply. They may be useful as suggestions, but the actual work on the negative should be much softer and more harmonious than is here shown.

ARTHUR WHITING.

Notes and Comment

George G. Rockwood, one of the most famous of American photographers, and one of the kindest of men, died July 10, at Lakeville, Conn. In his passing, American photography loses one of its most enthusiastic workers, and hundreds of photographers will grieve over the loss of an old and well-tried friend. Mr. Rockwood had reached his eightieth year, and retired from the cares of business only a few weeks ago, after almost sixty years continuous work under the skylight. He was probably more widely known in and outside of his profession than any other living photographer. His records show that during his long career he photographed over 350,000 persons, among them some of the most notable of American celebrities. He was especially skillful in child portraiture, to which he gave a whole-hearted devotion.

Mr. Rockwood was born in Troy, N. Y., in 1832, and, as a boy, forced by circumstances to take a large share in the work of supporting the family, entered the employ of a Troy newspaper. His attention was turned to photography by a meeting with Samuel Morse, the inventor of the telegraph, who happened to be exhibiting his photographic instruments at Saratoga, where young Rockwood was a hotel hall boy. Morse, it will be remembered, was a pioneer with Draper in the introduction of photography in America. The inventor took a fancy to young Rockwood and carefully explained the workings of the then novel instruments to him, thus firing the boy's ambition to become a photographer. His first photographs were made in St Louis in 1853. Shortly afterwards he produced the first carte-de-visite made in the United States, the subject of the portrait being Baron Rothschild. From that time to the very end of his career Mr. Rockwood showed himself prolific in the invention and discovery of new methods and

processes, which he freely gave to the profession to which he was, in many ways, a practical benefactor for over half a century.

Much of the work which made Mr. Rockwood famous was done at his studio at the corner of 13th Street and Broadway, New York. Later he moved his establishment to the corner of Union Square and 15th Street, where I made his acquaintance as far back as 1889, an acquaintance which ripened into a delightful friendship. In later years, his business developed broadly, and at one time I believe he had as many as five studios under his direction in different parts of the metropolis. A few years ago, Columbia University gave him the degree of Ph. D. for his services in music, this being his hobby outside of photography. He was a frequent contributor to the literary and photographic press, his varied experience giving a vivid human interest as well as technical authority to his writings. We shall not soon see his like again. May the earth rest lightly on him!



The second annual exhibition of the London Salon of Photography will be held at the galleries of the Royal Society of Painters in Water Colors, Pall Mall East, London, from September 9 to October 21. The receiving day for exhibits from abroad is August 21, and the collecting agents are Bradley & Co., 81 Charlotte street, Fitzroy Square, London, W. Entry forms and prospectus are now ready and can be obtained from the Hon. Secretary R. M. Cocks, 5A Pall Mall, East, London, S. W.



The fifty-sixth exhibition of the Royal Photographic Society of Great Britain was held at London, May 9 to May 31. According to the official catalogue, over a thousand exhibits were shown in the Royal Loan, Pictorial Photography, General, Color Photography, Natural History, Scientific Photography and Stereographic sections.

The pictorial section comprised almost 200 exhibits,

the majority of the prints being in bromide and bromoil, these methods together accounting for about 100 pictures out of 160 in which the name of the printing process was given. Platinum came next with 27 prints to its credit and carbon with 16 prints. Ozobrome, oil pigment and gum printing were represented by about half a dozen examples apiece.

The exhibition seems to have been completely successful, the color photography and scientific sections being unusually rich in interest. In the color sections, the Autochrome process seems to be the most popular method, although there is an occasional exhibit on the Thames, Dufay and Dioptrichrome plates. The Ives Tripak system of color photography, including the new form of camera, trichromatic platepack, developing rack and tank and examples of lantern slides and stereoscopic transparencies, attracted much attention in the scientific section. Among the curiosities of this section, we note a "Sunshine Index" shown by D. & L. J. Berlin, which enables one to determine by two simple adjustments, and with extreme accuracy, the time of day at which the sun will shine (or will not shine) in any given direction and in any month (between latitude N 40° and 60°). It can be used either on the spot by means of a compass or at any time beforehand on a map or plan. The sunrise and sunset lines show in how many directions the sun will shine only in certain months. Among the practical uses to which this "Index" has been put, the following are mentioned: (a) To determine the time the sun will shine across a building—architectural photography; (b) To determine the times at which the sun will not shine in a garden—for group and portrait work; (c) To determine the times of day and year at which the sun will shine into a studio if built with other than north light; (d) To determine the times of day and year at which the sun will shine on certain windows which it was desired to fit with either safelights or a daylight enlarger.



During the month of May a small group of photographers calling themselves the London Secession held

an exhibition of work at the Newman Street gallery. About fifty-one prints were shown, all framed uniformly in a thin dark flat. Among the exhibitors we note the names of Eduard J. Steichen, Baron de Meyer, Clarence H. White, Malcolm Arbuthnot, J. Craig Annan, Frank Eugene, George Davison, Alvin Langdon Coburn, Walter Benington, Gertrude Käsebier, Eustace Calland, J. Dudley Johnston, Frank H. Read, Archibald Cochrane, Heinrich Kühn, Alfred Stieglitz and Mrs. Annie W. Brigman. From this list it will be noted that the majority of the exhibitors are American workers.

The Wollensak Optical Company, Rochester, N. Y., ask us to advise the trade and buyers of exposure shutters that the photographic shutters made by the Ilex Optical Company (successors to the X. L. Mfg. Co.), are infringements on certain shutter patents owned by the Wollensak Optical Company, and that they have brought suit against the Ilex Optical Company to enjoin the manufacture and sale of these shutters. All dealers selling, or photographers using, the Ilex Company's shutters render themselves liable to suit on the Wollensak patents.

We are also advised by the Wollensak Optical Company that they are about to introduce a new pictorial or soft-focus lens—the Verito (True to Life), which will differ in design and principle from anything of its class at present available. A booklet, describing the Verito, will be sent for the asking to those mentioning this note.

The firms of Lumière, of Lyons, and Jouglà, Paris, both well known because of their color photography specialties, have united and will hereafter trade under the name the "Union Photographique Industrielle Etablissements Lumière et Jouglà réunis," with a capital of \$6,720,000.

In an English exchange the well-known lens house of J. H. Dallmeyer, Ltd., advertises in bold type

"Dallmeyer Carfac." These are said to "cost no more in sunk mounts than in the neat black mounts with iris diaphragm which are suitable for so many cameras. Their attractive appearance repossesses customers in their favor, etc." I wonder what a "carfac" is and how it looks?



An Australian amateur writing in the "Australasian Photo Review" gives a simple method of transforming an ordinary bromide enlargement into a negative—which is worth place here. The procedure is to make an enlargement of the desired size on a rapid and smooth bromide paper, giving rapid exposure so as to keep the shadows clear. This enlargement is then developed with metol-hydroquinone and washed for two minutes without fixing. It is then immersed for at least seven minutes in a bath made up of equal parts of the two following solutions. Prepare: No. 1. Potassium ferricyanide, 40 grains; glacial acetic acid, half ounce; water 10 ounces. No. 2. Uranium nitrate, 40 grains, glacial acetic acid, half ounce; water 10 ounces. These solutions will keep indefinitely by themselves and are mixed in equal parts of each just before required for use. When the toning is complete, the enlargement is washed in several changes of water and immersed for one minute in a solution composed of 20 grains ammonium sulphocyanide dissolved in ten fluid ounces of water. The print is then again well washed for two minutes and exposed to the light *given* from burning $4\frac{1}{2}$ inches magnesium ribbon at a distance of about one foot. The print is then rinsed and redeveloped in the original developer, after which it is fixed in hypo and washed as usual. This forms an easy and interesting method for producing large paper negatives very suitable for making gum, oil or carbon prints.



The above reminds us that a word of praise is due to our old friend Walter Burke for the many improvements he has effected in the "Australasian Photo Review" since he undertook its editorship some months

ago. The "Review," which is published by Australian Kodak, Ltd., at Sydney, is quite equal to our American monthlies in interest of text and illustration as well as in printing and general appearance.



"Cameras for the Professional" is the title of a well-printed and beautifully illustrated brochure just received from the Ansco Company, Binghamton, N. Y., and obtainable by any one interested, on request. It describes, with elaborate detail, the cameras, studio outfits, multiplying and special studio plate-holders, background carriers, vignetter attachments, and other apparatus manufactured by the Ansco Company for professional photographers, as well as process camera-stands, photo-engravers' screen plate-holders, copying, enlarging and reducing cameras for use by process and reproduction houses. A list of the famous Anthony soluble cottons, collodions and varnishes is also given, as used by photographers, wet-plate and process workers, and ferrotypers. The Anthony cottons, we note, are prepared under the immediate supervision of a man who has spent thirty years in this special line of work, and was the apprentice of the man whom the late Edward Anthony trained in the making of the Anthony soluble cottons of fifty years ago.



There is in preparation, at the Smithsonian Institute, Washington, D. C., under the direction of Mr. Thomas W. Smillie, an exhibition of over 5,000 photographs which will illustrate the evolution of photography from the discoveries of Niepce and Daguerre (1824-38) to the present time. This vast collection, probably unique in its range and completeness, will be carefully catalogued and indexed, each item being accompanied by a descriptive note showing its place and significance in the development of the art-science.



A wonderful little camera, no bigger than a penny match-box, is being put on the market by Burke &

James, Chicago. It is known as the Ernemann Detective Camera, measures $3\frac{1}{2}$ inches high, $2\frac{1}{2}$ inches wide, and $1\frac{1}{4}$ inches thick, and gives a picture $1\frac{3}{4} \times 2\frac{3}{8}$ inches. The body of the camera is constructed wholly of aluminum, covered with black morrocco leather. It is fitted with a universal focus, aplanat lens, $f/6.8$ and an automatic shutter giving time, bulb and instantaneous exposures from $1/25$ th to $1/100$ th of a second. This camera is a notable addition to the small cameras on the American market and should further popularize the use of these clever little instruments. Ask your dealer to show you the Ernemann Detective.



The Bausch & Lomb Optical Co., Rochester, N. Y., sends us the following extracts from a letter recently received from Mr. Hugo G. Ponting, photographer, attached to the British Antarctic South Polar Expedition under Captain Scott, of the British navy. They are interesting as showing that American-made lenses are doing good service under the difficult conditions which obtain between latitudes 77° and 78° , south:

"MESSRS. BAUSCH & LOMB,
Rochester, U. S. A.

February 7, 1911.

"*Dear Sirs:* A few days ago, while working with my 5×7 Reflex Camera from the deck of the Terra Nova, I had the misfortune to let the $8\frac{1}{2}$ -in. B. & L. Double Protar which you made for me, fall overboard, and it now lies on the bottom of McMurdo Sound in 200 fathoms of water. This instrument was the finest and most useful lens in my whole outfit and has done a great deal of most valuable work in these regions. I want it replaced at the earliest possible opportunity, and as Captain Scott's ship, the Terra Nova, is leaving for New Zealand, to return here in January, next, I shall be glad if you will have another lens made for me and send it to the New Zealand address which I am giving you on a separate sheet, it will then reach me in time to do a lot more valuable work before the Expedition returns.

"It is no joke photographing in these latitudes and,

moreover, the country is very lacking in beauty. I have got some fine studies of Mt. Erebus with the 8½-inch lens. Curiously enough, the lens was lost as I was endeavoring to depict our surroundings.

"I have done a very great deal of cinematograph work, and am sending back some 8,000 feet by the Terra Nova. When this gets to America I would like you to see it. It shows practically all of our work to date, with some fine ice-packed bergs, barriers, sledging, etc. We passed through one 300 miles of pack—the heaviest, I am told ever encountered on any Expedition.

"Practically all of the photographic work done to date by me for Captain Scott's book was made by your Double Protars.

Faithfully yours,

H. G. PONTING."

G. Gennert, New York and Chicago, the American Agent for Ensign films, reports a remarkable instance of the excellent keeping quality of these films. A customer sends in under date of May 30 a picture taken on an Ensign film roll, purchased in the spring of 1909 and marked to expire August, 1909. Although exposed May, 1911, when the film was two years and nine months old, and one year and nine months after the guarantee had expired, the entire roll gave perfect results which could hardly be told from absolutely fresh stock. The extreme speed and excellent orthochromatic quality of Ensign films added to the above indisputable keeping quality, makes it a most desirable film for the explorer or traveler who must have an ample supply of films but may not use them up immediately. The Ensign films now on sale are guaranteed until the fall of 1912.

It is always a big pleasure to note the success of a man whose work deserves success. So this is a word of hearty congratulation to Mr. D. D. Spellman, of Detroit, Mich., who has just taken possession of what looks like one of the best appointed and most tasteful

studios in all America. I quote the *Bulletin of Photography* for the description.

Mr. Spellman has for years cherished the ambition of having a model establishment, and to that end has toured Europe and America in search of suggestions. Thus, in his new studio are embodied many new and original ideas worked out in a charmingly artistic and practical manner. Every facility is provided for the production of the best class of work in all branches of photography and the convenience and delightful satisfaction of the patrons.

The building was built by Mr. Spellman to be used exclusively as a studio. It was designed by George V. Pottle, architect, in the picturesque old half-timbered English style of architecture, with heavy overhanging eaves and red tile roof. On the first floor are large reception-rooms, offices, and frame department, all finished in fumed oak, with velour and tapestry wall coverings, rich draperies, oriental rugs, and antique furniture of Tudor and Elizabethan design. The finishing and retouching rooms are also located on this floor. On the second floor are the dressing-rooms, furnished in mahogany and bird's-eye maple, the walls being hung with sunfast fabric to harmonize; also a large and attractive waiting-room. The posing studio, on this floor, is a large, handsomely furnished room. There is no skylight; instead, large windows are used, giving more of a homelike effect. The room is thirty feet square, with a seventeen-foot ceiling, the decoration of a soft gray, and has been pronounced by all who have seen it the most pleasing effect for the purpose that could be designed.

The darkroom, printing- and enlarging-rooms, framing- and stock-rooms are all in the commodious basement. The basement was built with double walls, and plenty of ventilation arranged for, affording large and comfortable work space, which is equipped for doing anything that is made by photography.



One of the most skillful technical workers in American photography, Mr. Charles Truscott, of Philadel-

phia, has at last persuaded himself to place his remarkable skill at the disposal of photographers and the public. Those who have a particularly difficult bit of work in copying and reproduction will do well to get in touch with Mr. Truscott, whose workrooms are in the Hale Building, Philadelphia. We endorse his work with pleasure.



The Lumière-Jougla Company has opened new retail headquarters at 75 Fifth Avenue, New York, under the management of Mr. William A. Neal. Mr. J. L. Brulatour, who for some years past has had charge of the New York store of the Lumière Company, has severed his connection with this house to undertake the selling agency for Eastman moving-picture film, with offices at 33 East 27th street, New York.



Defender Plates, made by the Defender Photo Supply Company, Rochester, N. Y., have achieved an enviable reputation for quality and reliability since their comparatively recent introduction. A few weeks ago I had an interesting afternoon with two new brands put out by this firm; viz., their Orthochromatic and Ortho Non-halation plates. My tests included trees in bright green against the sun, water in sunlight with a hazy shore in the distance, a domestic interior, advertisement hoardings in vivid colors and the like. The negatives passed my expectations as to color, the plates being exposed without a light filter, and in none was there any trace of halation even after tank development. In gradation capacity, about which I am inclined to be critical, in crispness of image and freedom from veil, they were altogether satisfactory.



Two attractively illustrated lists come to my table from Voigtlander & Sohn, of Chicago and New York. One describes the different types and characteristics of the Voigtlander lenses: the Heliar, the Dynar, the Portrait Anastigmat, the Euryscopes, Series III and IV A,

the Oxyn lens (for halftone and line engravers), the Apochromat Collinear (for process and three-color work), and the Voigtlander Collinears, Series II and III. These different objectives are shown in section, which gives the reader a very clear idea of the make-up and construction of one lens as compared with another. The technical description accompanying each diagram is unusually clear and has evidently been carefully prepared to give the prospective buyer all the information he can desire. The catalogue is beautifully illustrated with examples of work by the various Voigtlander lenses, and in the latter half of the book several pages are devoted to descriptions of the Voigtlander Lens Cells for hand-cameras, the Voigtlander Prisms for photo-mechanical work, telephoto lenses, exposure shutters and the New Model Voigtlander Prism Binoculars.

The second list is devoted to the Voigtlander cameras, viz., the Radiar ($3\frac{1}{4} \times 4\frac{1}{4}$ inches); the Heliar Reflex ($3\frac{1}{4} \times 4\frac{1}{4}$ inches); the Folding Metal Camera ($3\frac{1}{4} \times 4\frac{1}{4}$ inches and 5×7 inches); the Alpine ($3\frac{1}{4} \times 4\frac{1}{2}$ inches and $3\frac{1}{4} \times 5\frac{1}{2}$ inches); which can be fitted with a telephoto attachment; the Metal Heliar ($3\frac{1}{4} \times 4\frac{1}{4}$ inches), and the Voigtlander Stereophotoscope. These new models are ideal in compactness, neatness of construction and efficiency. They have the splendid reputation of the old established firm of Voigtlander & Sohn behind them and deserve the closest scrutiny on the part of readers who are in the market for a small camera of the latest type. Copies of the two catalogues can be had from Messrs. Voigtlander & Sohn on request by mentioning this note.



Gaslight prints in colors seem to be growing in popularity now that the production of pleasing color tones has been simplified. Readers who have not yet given this variation of the black-and-white print a trial should invest in a set of Varitone tablets (Schering & Glatz, 150 Maiden Lane, New York) and follow the simple directions accompanying the tablets.





Theo. Eitel

The Photo-Miniature

A Magazine of Photographic Information

EDITED BY JOHN A. TENNANT

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Outdoors with the Camera

There is never a question as to the pleasure which the camera adds to life out-of-doors. All the questions come afterward, when we go over the results and note the large percentage of failures. Why should we have so many failures, so many disappointments, so much waste in money and effort? The answer is plain. We attempt things without the knowledge and experience necessary to avoid failure and win success. Picture-making with the camera, as far as the great majority of us want to go, does not call for long and tedious schooling. It is not a difficult art to master; on the other hand, it is wonderfully simple; but it is not so simple as is commonly believed. There are a few things to be learned, and perhaps a dozen points which must be thoroughly mastered if we want satisfaction in results, as well as pleasure in the use of the camera. Here we have the purpose and scope of this little book: To give the beginner a clear understanding of some among the many things which make for success or failure in outdoor work with the camera, and to help him to avoid unnecessary disappointment and expense. We will discuss the subject very simply, from the practical viewpoint of those who photograph for the pleasure of it and demand a reasonable measure of success in results. Necessarily, many points will be touched upon very briefly, and the reader will be sent to other books for a more complete account for this or that, simply because a comprehensive handbook to outdoor photog-

raphy would fill many hundred pages. But we can cover the first steps here, and give the beginner all the information he needs for his first year's work with an inexpensive outfit, *i. e.* one costing less than \$20.

**Knowing
What Can
Be Done**

The range of outdoor subjects falling within the reader's capacity necessarily depends upon his photographic equipment and his knowledge of its use. To consider ever so briefly all the different conveniences and varieties of apparatus desirable or necessary for photography out-of-doors is frankly impracticable here for lack of space. I am, therefore, going to suppose, in the beginning, that the reader seeks help in getting results with whatever equipment he already may possess. But, since some things are possible and others are impossible with any given camera or equipment, it may be profitable to consider this question of capacity first of all.

More than half the failures and disappointments in photography are the direct result of attempting to do something which the equipment at hand cannot do. The other half of our failures generally come from the simple lack of knowledge or experience in handling our equipment and subjects. Success in photography, without trouble, means knowing what to do and how to do it. Persistent and exasperating failure must come in outdoor work with the camera unless we know just what the equipment can do and cannot do. If we use an extra-rapid plate or film, and give a snap exposure upon a group of trees under a cloudless sky on a summer's day at noon, we will surely get a black, under-exposed, detailless mass in the photograph representing the group of trees, and the blankest of white spaces representing the sky. If we had known, in this case, that such a subject under such conditions requires a slow color sensitive plate, used with a color screen, and a tripod exposure with a fairly small stop, we could have secured a fairly satisfactory picture of the subject. In the first instance, we were attempting an impossibility; in the second instance, we were working intelligently—that is, with knowledge. In photography, so much depends on knowing what and how to do.

How to Get to Know In order to get this practical knowledge of the capacity of the average equipment, the reader is advised to go quietly and carefully over the first fifteen pages in *THE PHOTO-MINIATURE* No. 114. In the same number there follow two or three pages on the treatment of different sorts of subjects and the question of exposure, which will help the worker to avoid failure and win success. The man who wants to tackle outdoor work with the hand camera will find a wealth of information, right to the point, in *THE PHOTO-MINIATURE* No. 107. Similarly, the most helpful discussion of the accurate calculation of exposure can be found in *THE PHOTO-MINIATURE* No. 105; and, if it is a question of photographing outdoor sports, then I would strongly urge a careful reading of *THE PHOTO-MINIATURE* No. 91. Coming back for a moment to the detail of apparatus, the reader who has invested in a camera of the reflex type will find *THE PHOTO-MINIATURE* No. 99 worth many times its cost for the very practical information it contains on this class of cameras and their successful use. The manipulation of very small hand cameras is taken up point by point in *THE PHOTO-MINIATURE* No. 97. There is no intention here to advertise these little books merely to extend their sale, nor do I desire to give the worker any unnecessary labor. The intention is to help the reader to get results, and a careful reading of the books mentioned will directly help in getting results.

For Example When a man begins photographic work out-of-doors, he needs to know many things about lenses and their use. A few days ago, I talked with a prosperous dealer who was taking up the use of the hand camera for his own personal pleasure, and he confessed, without shame, that he did not know the focal length of the lens in the camera he had chosen, or what bearing focal length had upon picture-making. Neither did he know anything about the influence or significance of the different lens apertures; nor did he understand the advantages and disadvantages of orthochromatic plates as compared with ordinary plates. The purpose of the rising front and swinging back of the camera was something con-

cerning which he had no idea whatever. There are many amateurs who set about their camera work with just as little practical knowledge. Like my friend, the dealer, they must learn either by experience (which is a hard and expensive school), or by reading, which is altogether the more intelligent and more economical way to go about it. Get the habit!

Take the case of the man with a hand camera which extends, say, six inches, fitted with the usual five-inch lens. If he attempts to photograph a yacht from the end of a pier in the harbor, he will get, usually, a picture showing a very small image of the yacht—too small to be really interesting. A practical acquaintance with lenses would have told him that, by the use of a Cooke-Telar on his camera, he could have secured (from the same distance) an image of the yacht twice as big on the same size plate. The Cooke-Telar is the only lens at present available which will give these enlarged images with the usual camera extension, and to gain this advantage it is first necessary to know that there is such a lens.

**Choosing
a Field** In what follows, then, I will presume that the reader has a practical knowledge of his equipment and especially of its limitations, together with a certain amount of facility in the handling of the camera. Having this we can look over the field of outdoor work intelligently and size up its possibilities from the personal viewpoint. Locality, the amount of available time and the like, will often decide for us where these opportunities lie. It is a good plan to cultivate a special field at first, and this, naturally, should be along the line of least resistance. It may be that street photography offers the largest opportunities, or the country life about the suburban home. Some may want to pursue landscape work through the changing seasons for a year, while others may be attracted by photography at night, or marine and seashore work. Outdoor sports and animal life offer a most interesting field for a hobby, with the single condition that the generally exacting conditions call for the highest efficiency in equipment, usually beyond that possessed by the average amateur outfit.

Vital Factors in Street Work Whatever special line of work is chosen, the first thing to do is to get acquainted with the factors on which successful work in that field will depend. This will save lots of waste in time and materials. For example: in street photography we need, above all else, accuracy in the use of the view-finder and focusing scale, facility in judging distances in feet, and a sure knowledge of the amount of depth of definition given by the different stops of the lens employed. In this field, too, we shall want to know something about the varying rate of movement likely to be encountered and how to use this factor in calculating the longest possible exposure, the right shutter speed to use, and so on. The question of illumination is a detail which calls for special attention in street work, often determining whether the plate will be under- or over-exposed, and having a marked influence on the effectiveness or pictorial value of the view.

In Night Photography Similarly in taking up photography at night, there are a few points to be well considered if a reasonable amount of success is to be expected. These points are fully dealt with and all the wonderful possibilities of this field are covered with practical information in *THE PHOTO-MINIATURE*, No. 104. Since these cannot be handled satisfactorily in a paragraph here, I serve the reader best by referring him to the little book mentioned.

In Outdoor Sports In the photographing of outdoor sports there are two factors to be dealt with. We must have some knowledge of the game or kind of sport in hand; and we need a very practical grasp of all the points involved in recording rapid movement by photography—the advantages of the most rapid plates (and especially how to develop them), the use of fast lenses (and especially how to get the utmost depth of definition with large lens apertures), the relative working efficiency of fast between-lens shutter and those of the focal-plane type, the advantages and disadvantages of cameras of the reflect-ing-mirror type and so on. These things need thrashing out at greater length than is possible in a page or two here; but the interested reader can get the information

from THE PHOTO-MINIATURE, Nos. 77, 91, 97 and 99, adding whatever he can find for his helping in the trade booklets published by manufacturers of the specialties used in this line of work. The point I want to emphasize is that it is upon this sort of knowledge that the expert "wins out," coupled, of course, with his own experience, which, however, can at best be limited as compared with the published experiences of many other workers in the same field.

Choosing Subjects It may seem absurd, at first sight, to consider so trite a detail as the choice of subjects when out-of-doors with a camera; but my experience tells me that the majority of beginners stand sorely in need of help in this matter. Go over the average amateur's outdoor pictures, and you will realize this. See the poverty of subjects: the endless groups of summer hotel people or scantily clad youths and maidens on the beach, the boisterous crowd in the wagon, starting out for a "straw ride," the country railroad depot and the excursion boat tied up at the lake pier, three girls in a swing or playing hide-and-seek behind a bush, the stout lady from Cincinnati and her "cute" baby, the girl in a bathing-suit trying the "Dying Gladiator" pose under a huge playbill bearing the suggestive legend "Tilly's Nightmare," and so on ad nauseam. Why do such subjects absorb the beginner so completely? In part, because of their human or personal interest: but also largely because the beginner cannot see or appreciate for himself what he is so quick to appreciate in the work of the serious amateur or pictorialist. I recall the case of a friend who spent a few weeks in quaint Nantucket, but could find no subjects worth a film. And there was another who went up into the Catskills two summers in succession, bringing back only the people at the hotel. As the old saw puts it: "they couldn't see wood for trees;" for there are subjects everywhere out-of-doors.

Doorway Pictures Oftentimes there is picture at the door itself, as Mr. Farini shows us in his "Gossip," among our illustrations. In my print collection I have a score of doorway pictures, with and without figures, some made by notable pic-



Gossip
Licinio Farini



Off the Coast of Maine
James H. McCorkle

torialists, but all well within the scope of the hand camera and the beginner's capacity. Sometimes the best viewpoint for the camera will be indoors, to get the figure or principal object against the light, with slanting shadows or sunlight to heighten the pictorial effect. At other times, the foliage around the door and the dark or half-dark space of the doorway will suggest a pleasing background for a figure. In the first case, we may need a support for the camera, a backed plate, ample exposure and generously large lens aperture, to get shadow detail and breadth of lighting effects. In the second, the every-day plate or film, a snap exposure in the hand, and the lens stopped to $f/16$, will give us a happy memory for after days.

At the Seashore If it is a seashore holiday, then a bit of the summer sea with a breaking wave, such as Mr. McCorkle gives us among the illustrations in this issue, is much more worth while than the insipid beach group. And its making will arouse a greater interest than the well-worn human interest of the three city salesmen scooping out a sandy grave for the buxom city typist. Of course, Mr. McCorkle did not get his "Off the Coast of Maine" at the first attempt; but in the end he got a picture which has given pleasure to hundreds of lovers of the sea and, incidentally, brought him hundreds of dollars from those anxious to possess prints. For such a subject one needs a bright day, a "speed" film or fast plate, a lens with $f/8$ aperture, and the favorable moment. If the reader can secure a copy of THE PHOTO MINIATURE No. 71: Marine and Surf Photography, he will find therein a wealth of helpful information about this fascinating field of camera work, with a collection of sea pictures which will arouse the right sort of enthusiasm. Unfortunately, it is out of print.

Among the Hills As an example of the class of subjects to be found in hilly or mountainous regions, "A Mountain Road" by Mr. Eisen, and "Pike's Peak" by Mr. Beam, will repay the reader's careful study. Few of us but have seen and admired such scenes in the Catskills, the Adirondacks, the hills of the south-eastern states and farther

afield among the Rockies and Coast ranges of California. In the portrayal of these subjects, the composition of the picture affords the best sort of exercise, renewing and refreshing every picture-making aspiration we possess. Foreground and sky demand the most skilful treatment; the rendering of the middle and distant planes is exhilarating in difficulty; the simple detail of focusing the view so as to secure the emphasis and subordination of definition in different parts of the composition gives us a new light on this usually neglected trifle. Ortho plates or films of medium speed, an adjusted color screen, the lens stopped to $f/11$ or smaller, and perhaps a tripod exposure of a half or full second, will give the tone values and atmospheric effects which lend so large a part of the charm which the original prints present to the eye. Such negatives are usually sought with a view to after enlargement. This necessitates careful technique and the taking pains in details. But a single picture of this sort is worth a few hundreds snaps at random, gives a keener pleasure, and can be turned into a source of profit, if this is desirable.

Then, there is the "Pastoral" subject, **Pastorals** as in the illustrations by Mr. Bourgeois and Mr. Bray. Here we have commonplace scenes made interesting by the introduction of animal life. Such subjects can be found at every turn along the countryside, and oftentimes in our city parks. While the composition or arrangement of the middle and distant planes should not be neglected, success depends chiefly on the pleasing disposition of the "life interest" in the foreground. This will call for patience, care in the direction of the light (controllable in choice of time of day and viewpoint), a fairly rapid plate, lens an $f/8$ or larger, and an exposure not exceeding 1-10th second under favorable conditions. By comparing the two pictures, the reader will note how the interest is concentrated in the "Pastoral" by the close grouping of the sheep, and the consequent contrast obtained by opposing lights and shadows in juxtaposition. Where this is possible in a composition including life, it always adds interest.

An attractive subject, splendidly handled, is seen in the group of trees, by Mr. Eitel, among our illustrations. **Trees** And yet how many amateurs would pass such an opportunity without seeing the picture! Note how cleverly it is spaced, so that every part of the picture is interesting. Note the management of the lighting, conveying a pleasing sense of open space despite the preponderance of dark masses, and how the composition hangs together, so that the eye goes in and out without leaving the picture space. It is worth observing, too, how much "color" there is, though the print is in black and white, i.e. without color.

Altogether different in character and treatment is Mr. Dunning's "An Autumn Dawn," as charming a bit of fall woodland as one may hope to see. Such subjects as this do not appear at every turn of the road, so to speak, but they can be found by those who, living in the country or suburbs, are familiar with the sparsely wooded tracts abounding on the outskirts of most large cities. I have been asked how the diffused focus effects such as this picture presents are secured. It will be observed that the foreground passage is sharply defined, all the rest of the scene being expressed in masses of soft form. This is obtained by using the lens at a large aperture and confining the area of sharp definition to a narrow plane, the device being equally simple of employment whether we use an ancient single landscape lens or the newest of anastigmats. The atmospheric effects peculiar to the autumn morning—the low-lying haze which veils the distance—further emphasizes this diffused focus effect, adding the very desirable element of mystery to the picture. If the vertical tree line at the right hand of the sun were softened a little in tone, I think the rendering would be improved.

The pictorial possibilities of the country home in winter, about which I have more to say on another page, are well displayed in Mr. Baker's "A Winter's Tale," the last of the illustrations. We have all seen this subject and wished for the camera—perhaps in vain. It offers

a convincing argument for the pleasures of photography in winter time and should send many of my readers out-of-doors with the camera when the first snow comes. Note well, before leaving the picture, the comparative values of snow and sky, so characteristic of the season; the lack of obtrusive detail, combined with an altogether pleasing distinctness of form and outline; the way in which the large mass of white snow is handled, so as to offer variety of tone without loss of characteristic texture; the touches of light in the sky and of dark in the foreground, to offset any tendency to monotony in the larger spaces.

**Pictorial
Sight**

These examples might be multiplied indefinitely, but we have seen sufficient to guide the beginner in search of subjects. In the annuals, such as "Photograms of the Year," many useful lessons of this sort can be found, and a wealth of suggestions helpful to the outdoor worker. It is largely by familiarizing oneself in this way with the work of others that the beginner in pictorial photography awakens to a lively appreciation of the beautiful, from which the pictorial instinct or is developed. I remember such an awakening. An enthusiastic amateur walked with me around one of the big halls of a picture-show, complaining, as we passed from picture to picture, of the scarcity of "good, old-fashioned photographs showing things as they are." Suddenly, as we stood facing a print somewhat resembling "A Winter's Tale," I heard him mutter the old Hebrew benediction: "Blessed art Thou, . . . who openest the eyes of the blind." I asked him to explain. "Why," replied he, "I have simply been blind on this pictorial business. This man has shown me how to see that indefinable something which men call 'pictorial quality.' Now I see and know, and I am going to make pictures instead of photographs."

**Yacht
Photography**

Those who live in towns along the sea-coast or on the great lakes have tempting opportunities for picture making in yacht photography. Sometimes it is possible to do much good work in this field from the end of a pier in the harbor, but the most interesting yacht pictures,

showing life and motion, are usually secured in the open by working from the deck of another boat, which is navigated so that the most favorable view is obtained. In one case, it is possible and advantageous to use a tripod; in the other, the camera is used in the hand, and success depends as much upon self control as upon photographic skill of the worker.

Size of Image Since the subject will usually be fairly distant from the camera, the ordinary lens fitted to the hand camera will (by reason of its short focal length) give disappointingly small images. The remedy is to use a long-focus lens, if the camera extension will permit this, or to employ a special lens, such as the Cooke-Telar, which gives a large image of a distant object with the usual hand-camera extension. Slow-backed or non-halation plates or films may be used for the work, and it is difficult to under-expose, as the light conditions are generally all that can be desired. In fairly favorable circumstances, one twenty-fifth second, with the lens stopped to $f/16$, will give a fully exposed plate. Focusing is done by scale; but, since the judging of distances on the water is difficult, it may be well to set the focus pointer at the infinity mark and work on that, unless the boat comes within hailing distance.

Broadside views of yachts or any sort of sailing vessel are rarely desirable, and the speed of the boat is more difficult to contend with from this viewpoint than from any other. A three-quarter-front view, on the other hand, will generally offer good lines and a pleasing ensemble, with plenty of life and go.

Yachts at Rest Harbor scenes, with yachts riding at their stations in well-balanced groups, are very pleasing if treated pictorially. The lighting of the scene is here a detail of importance, the late afternoon or early morning, when the sun is not high, giving the most desirable effects. In such circumstances, a fast ortho plate and color screen, with an ample exposure and a small lens opening, will generally produce a more interesting result than a "snapshot." Care should be taken that the point of sight is not too high; about eight feet from the water being right, unless

foreground water effects with reflections are desirable. In all marine photography, where the illumination is apt to be very intense and reflected light is a difficulty, the use of a lens hood is necessary and, apart from its advantage in preventing light fog, it will serve to protect the lens from spray.

Sea and Shore

For general seascapes and shore views, rapid plates and quick shutter speeds may be laid aside with advantage, the slowest movements of most shutters being sufficient for the average open-sea view. For these a speed of one-fifth to one-twentieth of a second will meet all requirements, and for a large proportion of the exposures an isochromatic or slow ordinary plate, well backed, or the ordinary film, will give the most satisfactory results. Of course, in views made under such conditions, we cannot expect wave-studies of microscopic definition; but we are not looking for these now, preferring a certain lack of definition with more than a broad suggestion of movement. We may attempt now to compose pictures in which the sky, the sea, and the various landmarks along the shore, shall all contribute their share toward securing pictorial effect. Three hints may be given as of general application: Look after your foreground that it be interesting, relieved, if desirable, by the judicious placing of a dark mass, such as the hulk of an old boat, or a clump of stunted shrubs, to give distance to the horizon. See that the horizon is absolutely level, and not at the center of the view on your plate; it will always be more pleasing if placed at one-third or two-thirds of the width of the plate. Be careful to see that you have *one* interest in your picture; do not let sea and sky clash, or foreground and middle distance.

Developing Sea Views

In developing plates exposed at the shore, if the exposure has been made during the middle portion of the day, it will often be found useful to commence development with a solution containing a large proportion of the developing agent used and bromide; indeed, double quantity of both to that recommended as the normal developer for the plates used; this will insure getting sufficient contrast, whereas, when the plates are placed



Pike's Peak
George L. Beam



in a weak developer to commence with, it is often difficult to obtain negatives which will print satisfactorily.

When developing plates which have been exposed either in the evening, or upon subjects containing not only sea and sky, but a rocky foreground in deep shade, then the reverse plan would be found to answer better.

In this instance, we should find some portions of the plate upon which the exposure has been ample; but the shadow portions would require careful handling, if the resulting negatives are to prove capable of giving prints which show a full range of gradation, instead of large patches of practically unbroken black to represent what we know should be fully modeled shadows; or, if in printing we allow it to continue only so far as to impress the details in the shadows, then the high lights either will not have shown signs of printing at all, or only to so slight an extent as to be useless, and therefore it is necessary, when contrasts in the subject are marked, to reduce to perhaps one-half the normal amount of whatever developing agent is used, and to use the developer in such a way as to give an extremely thin, delicate image, with every detail which had impressed itself upon the sensitive plate brought out, then having obtained full modeling, a strongly restrained developer may be applied for a few minutes.

Summer Landscapes Rarely, if ever, does the amateur experience a keener disappointment than that which comes when he looks over his first attempts at landscape work with the hand-camera, usually made during the summer holidays. Instead of the delightful views of meadow and hillside, with a farmhouse nestling among a group of shade trees, woodland and winding stream, forest lake and rustic camp, with perhaps fine masses of sunlit clouds reflected on the lake, his prints show mere records of bits of scenery, with little of beauty or interest in them to justify the making of negatives and prints. Who has not known this disappointment? It may be profitable to discuss very briefly two or three points bearing on the big percentage of these failures in summer landscape work.

Causes of Failure

First and foremost, the average landscape, as seen by the eye, is chiefly interesting or beautiful by reason of its large masses of color contrast, its bigness or sense of space, and the variety it presents in form and light and shade. To portray such a scene within the narrow limits of the average hand camera size, say $3\frac{1}{4} \times 5\frac{1}{2}$, losing all the sense of space and color, and rendering the subtle harmony of nature's color contrasts by inharmonious contrasts of light and shadow, will usually result in a maplike record lacking charm and interest. It cannot be otherwise in the great majority of instances. Natural scenes embracing a wide expanse rarely lend themselves to the making of small reproductions possessing pictorial interest. In order to get this pictorial interest in the photograph, we must perforce give at least some heed to certain rules or devices commonly employed in picture-making by all methods.

A Few Suggestions

Thus, we must learn to look at the light and shade contrasts of a scene, generally called luminosity contrasts, without regard to color. By viewing the subject through a piece of blue glass, or blue spectacles, we get an altogether new interpretation of the scene, and a fairly true idea of how it will appear in the photograph. We must also know something about the significance of lines and forms and masses, and how to arrange or dispose them so that they will help, instead of interfering with, the interest of the subject. This means knowing how to select the most pleasing or pictorial part of a scene; how to emphasize or lead the eye to the part or object of chief interest, and how to subordinate other parts or objects to the principal interest. These things are accomplished by selection, elimination and arrangement, by choice of the viewpoint, or the distance from which the subject is photographed, the use of lenses of different focal length, color screens, and other obvious devices down to the correct trimming of the print.

Light and Shade

It is also necessary to know something about light and shade, since the haphazard handling of these may spell failure. Thus, the time of day, the direction of the

light, and the atmospheric effects perceived by the eye, have much to do with our pleasure in any outdoor scene. For example: We look from a window on a summer's day at noon and see a delightful valley stretching as far as the eye can see. There is no haze, everything stands out clear and distinct—the near-by village, the farmhouse, and the bits of woodland here and there. It is a pleasing sight, but we turn away and it is quickly forgotten. We see the same view late in the afternoon; purple mists are gathering in the valley, the long shadows and shafts of mellow light here veil and there illuminate, the near-by village and farmhouses have lost their hardness of outline, the woodlands appear as indistinct masses of tone lacking form and color, and every detail is softened. The whole aspect of the scene has changed. It is the same view which we had at noonday, with a new element in it—the element of mystery. We feel, rather than see, the beauty of the landscape, and do not so quickly forget its charm. In after days, when we recall for a moment the clear view, we linger over that other aspect which delighted us as much by what it veiled as by what it revealed.

Similarly, the average landscape may
Planes be said to have three distinct parts: foreground, middle ground and background; or, as it is usually put, foreground, middle distance and far distance. The interest of the photograph may depend upon the particular treatment of one of these parts, hence the necessity of selection. It may be that everything will depend upon the arrangement of the foreground. Where this is seen to have special interest, it is often made to occupy a considerable portion of the picture space, leaving perhaps not more than the upper third of the picture space for the sky. If, on the other hand, the foreground has no special interest, but the far distance and sky combined are especially pleasing in form and contrasts of light and shade, then these may occupy the largest portion of the picture space, the foreground being confined to the lower third. This, which is just by the way, will serve to emphasize the significance of the common rule that in landscape work the horizon or meeting of earth and

sky, or far distance and sky, should never come at the exact center of the picture space. Closely allied to this is another rule (hateful word) which tells us that in a landscape where a road or stream forms the feature of chief interest this should not be allowed to run through the center of the picture space, since it will thus divide the attention and convey a sense of monotony or repetition. The remedy, of course, is to so choose the point of view that the road or stream will run obliquely across the picture space, thereby giving a more pleasing perspective and a greater variety of line and form. And so we might go on for a couple of hundred pages; but these hints will serve to emphasize the necessity of knowing something about pictorial composition, a subject far too big and too complex to be dealt with here.

**Unfavorable
Conditions**

Even with a knowledge of composition, however, the hard fact remains that the summer months, and more especially July and August, are not favorable to outdoor pictorial work. The foliage has reached its full growth, and is generally wilted and somewhat dull in color; the skies are generally cloudless and hard in brightness, and the contrasts in the average subject are likely to be harsh and unpleasing, especially during the hours between 10 A. M. and 4 P. M., when most of the summer photographing is done. There is an obtrusiveness of detail everywhere, an all-pervading clearness of atmosphere, and everything seems to be projected in hard and unyielding relief. For this reason, landscape work in summer must always present more difficulties than will be encountered outdoors in early spring or autumn. Correct exposure and a development aiming at softness in detail will be the safest line to follow.

**A Developer
for Softness**

Pyro-soda and metol-hydroquinone are both rather inclined to give vigor, and the technique of the negative demands that the former be used somewhat dilute, and that the latter be used with a good proportion of metol. A plain metol developer, capable of giving softly-graded landscape negatives, is one made with metol alone, according to the following formula:

A.—Metol, 24 grains; sodium sulphite, $\frac{1}{2}$ ounce;

distilled water, 5 ounces. B.—Potass. carbonate, $\frac{1}{2}$ ounce; water, 5 ounces. Three parts of A are mixed with one part of B for use, and three drops of ten per cent bromide solution are added to each ounce of the mixture. The image comes up thin and gray, with very full detail, and gradually gains in contrast.

Rodinal or citol are capable of giving good landscape negatives, as they yield plenty of shadow and middle-tone detail, while maintaining just that contrast which gives piquancy to the summer landscape.

Sunlight Effects The charm of sunlight in the outdoor summer picture is not sufficiently appreciated by the average worker in outdoor photography. Properly handled, sunlight gives the effect of life, interest and variety of tones, lacking which a scene may be dull and monotonous. F. J. Mortimer, an English pictorialist of note, writing in the "Amateur Photographer," says of this special field:

The photographer who is most likely to appreciate the value of sunshine apart from the question of cast shadows is the worker who favors woodland subjects for pictorial purposes. The magic transformation that takes place when a forest scene, full but comparatively flat in its masses of level green tones, is suddenly suffused with brilliant sunshine, must be familiar to every observer. Tree trunks separate themselves, and the masses of foliage take on a luminous vitality that only sunshine can give. Both reflected and transmitted light play an important part here, and the varying coloring of the leaves and masses of greenery form a wonderful scheme of light and shade that unfortunately is rarely done justice to in a monochromatic photograph.

Cast Shadows Possibly few workers realise that the apparently dark cast shadows of the sunlit picture are but the general tone of the whole when the sun is clouded over. The sunlight is merely an added amount of brilliant light, the cast shadows are those portions of the original subject that the direct rays of the sun cannot reach at the moment, and do not really change. The effect of their becoming darker as the other portions become brighter may be regarded as an optical illusion.

As an example, take the familiar case of the shadows cast by the sash-bars of an ordinary window through which the sun shines. Assuming these shadows fall on the white cover of a table standing near the window, the pattern made by the cross bars is dark gray compared with the brilliant white of the illuminated portions. Later the sun is obscured with a cloud; the pattern cast by the window frame vanishes, and the white tablecloth becomes an even tone, apparently white to the eye. Yet this whiteness of the tablecloth is really the same tone as the dark shadows we saw when the sun was shining.

This brings us to a consideration of the possibility of rendering sunshine adequately in photography. The same problem has been repeatedly dealt with by painters, but in their case they have the addition of color to assist in presenting the illusion; nevertheless, their scale of tones is limited in exactly the same way as the photographer's. The highest light—the sun itself, if need be—can be represented only by white paint or white paper; black pigment has to serve for the other end of the scale, *i.e.*, the deepest, blackest shadows.

Two Methods

Sunlight in outdoor subjects can, in most cases, be suggested in photography by employing one of two methods of work. These are (1) the presence of cast shadows, or (2) high key. The painter-artist generally finds expression of sunlight in contrast. He intensifies the feeling of sunshine by frequently placing the darkest part of the picture adjacent to the sunlit portion. This is, of course, an application of cast shadows. The painter, however, is helped by color, and the photographer who follows this plan may find his monochrome rendering more suggestive of a snow scene or moonlight view than of sunlight. To avoid this, the shadows *must* be luminous. In the high key picture, the sunshine is suggested by white paper, and the darkest cast shadow by variations of comparatively light tones (but certainly not black). The same range of tones, but in a lower key, may also be employed, and, although sunlight may be suggested, the picture lacks the luminosity and lightness that real sunshine should have in pictorial representation.



Pastoral
Cleo. S. Bourgeois



Summer Pastures
Ernest A. Bray

By employing the extremes of high light (apart from the sky) and darkest shadow, but with little of the intermediate tones, approximately the effect of moonlight is given, due to the steep gradation.

The general tendency is to shorten the exposure when the sun shines, but it should not be forgotten that the application of the old maxim, "Expose for the shadows and the high lights will take care of themselves," is here peculiarly useful.

The high key negative of a sunlit subject, or, at least, the negative that will give a high key print, is most readily obtained by giving a full exposure, so as to secure the fullest amount of detail in the shadows, followed by development with well-diluted normal developer. This treatment should produce a negative moderately flat in character, but saved from actual flatness by the presence of contrasts of light and shade in the subject itself. There should be no very dense, nor yet very thin, portions in the negative of a sunlit subject.

Twilight Possibilities A fascinating field of outdoor photography, which is almost wholly neglected despite its wonderful possibilities, may be found in the streets and small parks of our cities at twilight, or around the country home just after sundown. The time available for such work—the last few minutes of daylight and the first glimmer of the night lights—is necessarily short, so that the possible subjects within a given area should be known and carefully studied before the actual camera excursion. A tripod will be needed, as the exposures will range from three to ten minutes, even with a fast lens and a rapid ortho plate or film. If it is possible to work from the shelter of a doorway, or from a window not too high above the street (but sufficiently high to avoid the inclusion on the plate of passers by), such a viewpoint is advantageous, as obviating the inconvenience of a curious crowd about the camera. In pictures of twilight scenes, as a matter of course, there will be a general absence of detail, and the subject chosen should be one which lends itself to pleasing interpretation by broad and large effects of darks and halftone. In some instances, the lines and projections of a building or an arch in the

immediate foreground of a town scene, or the trees about the country-house, may be used to enclose the object of chief interest, just as the dark proscenium arch of the theater frames and enhances the pictorial value of a stage setting. Oftentimes, the effects of dusk can be emphasized by a double exposure made, without moving the camera, just before the last gleams of daylight fade, and again as the first lights of the streets and buildings begin to appear. A good skyline, rendered in soft silhouette, will also add to the charm of the carefully chosen twilight subject. Ample exposure is essential in work of this class, under-exposure destroying all the subtleties which make for pictorial effect.

Few pictures are more effective than **Wet Days** good wet-day subjects. These pictures are usually taken in towns where the wet streets give reflections, particularly if they are laid with asphalt or other smooth material. There is no reason why country lanes, where the wet gathers in the furrows, should not be equally pictorial, and some fine effects could be obtained with reflections as the skies cleared. But for the moment we are considering wet days with street reflections. If rain is actually falling, the camera and lens should be carefully shielded from it. The metal parts of the camera should be wiped over, both before and after using, with a bit of oiled rag; and the lens should be seen to and wiped from time to time with a soft dry handkerchief, or moisture may condense upon it and so spoil some exposures. With a lens working at $f/11$, we must choose a bright, rather than a dull, wet day, for of course we must have figures in our picture. The reflections tend to shorten the exposure, but, although our prints are low and even in tone, they must not be under-exposed. Unless the light is very bright, do not be tempted by snap-shots, but be content with time exposures. A time exposure is not necessarily a long one, nor does it inevitably demand a tripod. The camera may be rested on a wall or step, or pressed against a post, and an exposure given which will probably be brief enough for anything but actually moving figures. Thus, it is fairly safe to risk that a standing team will not move during an exposure of one second.

**Wet
Evenings**

We have already referred to twilight pictures, and these are peculiarly suited to wet days. Taken when there is daylight sufficient to render detail, but so little that an exposure of minutes is required, the pictures give a real feeling of evening. If the distant lamps have been lit, they will, if old-fashioned gas-lights, show well in the picture; bright lights should be avoided, for they will give balls of halation. It is difficult to give a rule for exposure. We recently rested a small camera on a step. The lens worked at $f/16$ and it pointed down the street westward to a cloudless sky, for the clouds had lifted, though the pavements still gleamed with wet. It was light enough to just read a paper, and we gave five minutes. The negative developed successfully, giving the lights of the feeble gas-lamps, and their reflections, without any trace of halation.

**Autumn
Pictures**

There is a growing tendency among hand-camera workers to get away from the mere recording of life and incident subjects, and to devote serious attention to pictorial work. For those who feel this inspiration toward better things, the autumn brings golden opportunities. As the editor of the "Amateur Photographer" says in a recent issue :

The great charm of autumn lies in its variable moods. Some days are light and sunny, with very little "atmosphere;" others are full of gray, clinging mists which have their depths in woods. And on either of such days the country presents possibilities not found at any other period of the year. A stillness pervades the woods and meadows; there is little danger of movement by the wind, for wind in autumn is exceptional. And, taking a technical standpoint, it is time for orthochromatic plates and screens, large lens apertures and the use of a tripod.

Autumn is essentially a season for the use of the color-sensitive plate, for the colors of the faded and fallen leaves are more or less yellow and orange, and the ordinary plate cannot do entire justice to the fine colored landscapes which Nature presents to the photographer. Many trees possess quite reddish-brown foli-

age in the autumn, and these deeper tints are not by any means easy to render truthfully ; and, although the "correct" orthochromatic screen is supposed to give the right representation under all circumstances, it sometimes seems to fail in the autumn.

**Color
Screens**

Yellow being the predominant color in autumnal landscapes, the average make of yellow-green sensitive plate will answer for most occasions, and the pale yellow screen which requires one to give about five times the normal exposure will be found all that can be desired. The great stumbling-block with landscapes at this time of the year, however, is in the exposure. The strength of the light is rapidly getting less, and toward evening, or let us say toward sunset, the light usually assumes a somewhat golden or even reddish hue owing to the mistiness of the autumnal atmosphere. Now, these mists really act as an orthochromatic screen to some extent, and cause the blues and violets to be far less actinic than they would be at an earlier hour of the day. We therefore recommend, for autumn work with color-sensitive plates, two screens, one the usual yellow one, and the other a rather lighter one for afternoon work. The advantage of having these two screens will be realized after the first few times they have been used.

On a dull day, we are met with another difficulty in exposure. It will sometimes be found that a much longer increase in exposure with the yellow screen will be necessary than at other times. In fact, it sometimes seems really impossible to greatly over-expose when using the orthochromatic screen. In bad weather, we should not hesitate, for instance, to give seven or eight times the normal exposure with a screen which was nominally only a five-times screen. There is a great deal of latitude in exposure when using a color-sensitive plate and screen, and over-exposure is a very rare fault in one's work at this time of the year.

At first sight, it would seem impossible to accurately represent with a plate which was not red-sensitive (*i.e.*, panchromatic) a subject rich in reddish tints. But we must not forget that red is most frequently a mixture in Nature, and may contain sufficient yellow or yellow-



An Autumn Dawn
E. G. Dunning



A Winter's Tale

green to enable the latter colors to impress the plate. The photography of really red autumn pictures, on the other hand, is always best accomplished with a plate which is panchromatic, and the many excellent makes of panchromatic plates which are now on the market will give perfectly truthful results with an orange screen requiring something like ten times normal exposure. When using just a plain yellow screen, *i.e.*, one not spectroscopically adapted to the plate, it will be found that with a panchromatic plate a shorter exposure can be given, that is to say, a shorter increase, while with an "unscreened" panchromatic plate the gain in color rendering of an autumn landscape will be very marked.

One little point well worthy of notice is that green and yellow sensitive plates are inclined to be a little harsh, especially if slightly under-exposed, and ample exposure should therefore be given whenever possible. With under-exposure and consequent forced development, the color rendering is sure to suffer, whilst by intensifying a negative which is a little flat through over-exposure this fault may be minimized.

As suggested above, there is always a tendency to harshness when using orthochromatic or panchromatic plates, when the exposure has not been full, and, as these plates are strongly recommended for all outdoor work in the autumn, the worker should endeavor to either fully expose his negatives, or, when under-exposure is suspected, use a well-diluted energetic developer, such as rodinal, citol, or metol, endeavoring to secure thin, fully gradated negatives. It is only by these means that the full suggestion of a long range of color values given by the color-sensitive plate can be retained. Tank development in dilute solutions will probably give the highest percentage of good results.

The coming of winter, with its frosts, ice and snow, opens up a new world of beauty and interest out-of-doors, and the amateur who puts his camera away on the shelf at the end of October misses a photographic season which fairly rivals the summertime in its wealth of pictorial possibilities and opportunities for pleasure with the

**Ample
Exposure
the Key**

**Winter
Photography**

camera. More than that, for those who have the sporting instinct, the difference between camera work in summer and in winter is such as to add zest to the latter, the changed conditions everywhere bringing new experiences well worth while. As for the range of subjects, it would be easy to rhapsodize through a dozen pages over the magic transformation effected by a heavy frost or snowfall along the country lanes, in the suburban garden, and in our city streets and parks; how the leafless glade takes on the rare loveliness of fairyland; how the prosaic face of the commuter's landscape gleams like the Elysian fields of dream, and the ugliest of city streets stretches before the eye in white-robed beauty like unto a vista of the New Jerusalem; and so on. But I must leave the appreciation of the winter's bewildering beauty to the reader, being here chiefly concerned with the practical side of getting winter pictures worth the personal discomfort encountered in their making.

The question of apparatus need hardly trouble us at all. Despite the trying atmospheric conditions met with now and again, and the dull light prevailing during the most favorable hours, viz., between 8 and 11 A.M. and 2.30 to 4 P.M., the great masses of white and gray in the average winter subject, whether broad landscape or hoar-frosted detail, make success almost equally certain with the cheapest or the most expensive equipment. Of course, for outdoor work amid falling snow or driving sleet, as well as for outdoor sports with rapid movement, a camera of the reflex type and the most rapid of modern anastigmats give definite advantage. But, for general winter work, the hand camera will suffice.

An expensive lens is not at all necessary, the usual rectilinear working at $f/8$ (No. 4) answering every purpose except when small negatives with finely defined images are desired for after enlargement, in which event the more modern anastigmat, with its capacity for critical definition, is indicated. For many subjects, however, the lens aperture employed will be $f/11$ (No. 8) or $f/16$ (No. 16), according to the amount of "depth" desired or the character or illumination of the subject.

Where, as is often advised, a slow orthochromatic plate and adjusted color screen are used (and their use does offer decided advantage in the matter of tone values), then the anastigmat with its aperture of $f/5.6$ (No. 2), or larger, is desirable, as offsetting the loss of speed in the plate and screen equipment. It is hardly necessary to add that special lenses, such as one of the "pictorial" or diffused-focus type, or a convertible lens giving choice of three different focal lengths with the consequent variation in the size of the images, or a lens such as the Cooke-Telar, offer the same advantages in winter as in summer photography.

A lens hood is a most desirable convenience in winter work out-of-doors, although we seldom find it used or recommended. Its obvious purpose is to shield the surface of the lens from reflected light. As this comes as much from the snow-covered ground as from the sky, the lens hood for winter work should be either funnel-shaped or box-like, similar to the new folding-lens hood just introduced by Dallmeyer (London), so as to shield the lens all around. A funnel-shaped hood can be made, conveniently, out of a piece of stout black paper, care being taken to see that it does not project too far in front of the lens, and so cut off the view at the corners of the plate. No reader who once uses a lens hood for outdoor work in winter will ever lay it aside, the advantage it gives in producing negatives free from light fog or veil, preserving the delicate brilliancy of the highlights in the subject and differentiating the planes, being unbelievable except by demonstration.

Another important trifle which has much to do with the success or failure of outdoor winter work is to keep the surfaces of the lens free from moisture or veil, due to changes in temperature. This is easily done with a piece of dry, very soft, linen rag; the point is—do not forget to do it from time to time.

Whether a tripod is carried or not depends upon the sort of work contemplated and the enthusiasm of the worker. For serious pictorial work and plates 5×7 or larger,

where it is desirable to compose and focus the subject on the ground-glass and the exposures are likely to exceed one-tenth second (the maximum exposure possible without movement with a camera held in the hand), the tripod will be a material help to successful results. But for the great majority of winter subjects out-of-doors and with fairly good illumination, the hand camera, with its finder and focusing scale, will serve all our needs, and is much more easily handled than the unwieldy tripod equipment.

Plates or Films Similarly as to plates or films; the slow ortho plate, backed, and an adjusted two or three times color screen, are ideal for the perfect rendering of snow and frost subjects. Or we can use a backed, color-sensitive plate, needing no screen, such as the useful Imperial Non-Filter plate, with advantage. But the familiar roll film or filmpack, with its non-halation backing and slight color sensitiveness, will give a sufficiently pleasing result, with careful exposure and intelligent development.

Exposure Here we touch the most important detail in outdoor winter work where snow is concerned: the necessity of correct exposure and careful development. To render the delicate drawing and subtle gradations of frost formations and snow, we want as near as possible a technically perfect negative. Guess-work means failure and waste of time and material. An accurately timed exposure is the surest way to the successful snow picture, and, to the man facing for the first time the complex and unfamiliar light conditions in winter work, the Wynne or Watkins exposure meter is a necessity rather than a convenience. With a correct exposure, well-balanced or normal development is an easy matter. The ideal negative is one fairly thin, but sufficiently crisp to give a good print on platinum or normal development paper, without a suspicion of flatness or veil in the highlights. Under-exposure is fatal to the snow picture, giving soot and whitewash effects; over-exposure means degraded values and an undesirable, woolly grayness. Get the meter and use it faithfully; you will be well repaid by the difference in results.

As a rough guide in winter exposure, it may be said that, under exactly similar conditions except for the covering of snow, the average winter subject will require from five to fifteen times the exposure which the subject would require in May or June. The variation in this wide range allows for widely different classes of subjects. For example: With a plate or film of ordinary rapidity and a lens stopped to $f/11$ (No. 8), a fairly open winter landscape at eleven A.M. will need one-twenty-fifth second; at four P.M. a full second will not be too long an exposure for the same scene. If the scene has large, dark masses in the near foreground, then half a second may be needed at eleven A.M., to give a pleasing amount of tone and detail in the dark foreground. But there are so many local factors to be considered in winter exposures that a meter is the only really satisfactory guide.

With regard to the development of
Development winter exposures, everything depends on the method chosen. If we are sure of our exposures, and this is the simplest and best basis to work upon, the usual formulæ and method used in normal tank development will give satisfactory negatives. If, however, any uncertainty enters into the matter of exposure, and tentative development is the plan chosen, then a diluted developer of the non-fogging type, such as citol or rodinal, offers the surest road to good negatives. A working solution of citol or rodinal, or azol, 1 part to 30 or 40 parts of water, is advised as typical of the sort of developer used by expert workers in this field. If the negative shows indications of flatness in this somewhat prolonged development, remove the plate from the dilute solution and finish the development in a solution made up of citol or rodinal $\frac{1}{4}$ ounce, water 5 ounces. A good M-Q developer for the general run of winter exposures is: metol, 30 grains; hydroquinone, 30 grains; dissolve in 20 ounces of water; add to this sulphite of soda (cryst.) 1 ounce, and carbonate of soda (cryst.) $\frac{3}{4}$ ounce. For open views with large unrelieved masses of snow, take 2 ounces of this stock solution, and add 4 ounces of water to form the working developer. If the subject has heavy masses of dark

in the foreground, add 8 instead of 4 ounces of water. In either case the addition of 1 drop of a 10 per cent solution of potassium bromide to each ounce of the working developer will help to keep the plate free from fog. If there are indications of flatness or over-exposure, pour off the dilute developer and finish development in a normal solution made up of 2 ounces of the stock solution and 2 ounces of water. The temperature of the developing solution should not be lower than 60° Fahr.

Under-exposure and over-development are the two principal errors to avoid in the making of winter pictures. In case of under-exposure it is better to slightly under-develop rather than otherwise, as a slight grayness and lack of detail in the shadows are altogether more desirable than the harsh contrasts resulting from the full development of an under-exposed winter subject.

One of the wisest things F. Dundas
Lighting Todd ever said was to the effect that the illumination of the subject was the most important detail in outdoor work. It applies with peculiar force to winter work out-of-doors because of the tendency to monotony in the average winter scene. A great deal depends upon the direction in which the light falls on masses of snow, if we seek to render the snow as snow. In the summer landscape, the highest lights will often occupy a very small area, a large proportion of the picture space being occupied by the half-tones and shadows. In the winter scene, the range of light value is much shorter, and the larger part of the picture space is filled with highlights and delicate gradations in the upper portion of the scale from light to dark. Hence the importance of illumination and correct exposure. Sunlight is a big help, but needs the most careful handling if detail is to be retained and harsh contrasts avoided. Even when the sun is not shining, however, it will be seen that one viewpoint will give the snow surface a more pleasing aspect than another. If this detail is attended to, the dullness and flatness of effect so often observed in the average winter photograph can be avoided, and in its place we will secure the soft brilliancy and sparkle which make up so much of the charm of the winter scene.

**Foregrounds
and Sky**

The foreground and the sky demand the most careful treatment in the pictorial handling of a winter landscape. The former, by reason of the contrast it offers with the rest of the picture in emphasis of form and strength of tone, should be so treated as to give balance to the composition and lend character and interest to the more or less unrelieved masses in the middle and distant planes. Where a more substantial foreground is not available, a broken branch or two, or a track of footprints, or a few long shadows when the sun is low, will supply this sometimes necessary interest, and materially help the perspective effects. The winter sky is very often a dull expanse of gray, heavy in tone and lacking in interest. In the photograph, its influence upon the rest of the picture is generally depressing. For this reason, it will often be desirable to arrange the subject so that the sky will play only a minor part in the composition, or to trim off as much sky as can be spared in the finishing of the print. On the other hand, it is often possible to obtain a pleasing sky and landscape together in winter, because the relative values of earth and sky are then more nearly alike than in summertime. Especially in the early mornings and late afternoons of November, December and January, may we look for pictorial effects in skies and sunsets well worth our skill. Another variety of pictorial effects possible in winter is that obtained by working against the light. By shading the lens from the direct rays of the sun with the aid of a nearby tree-trunk or some similar obstruction in the view, we may thus secure the long, low-lying shadows which are so effective in the outdoor winter scene. It is necessary in work of this kind to avoid strong, glaring light effects, to give as long an exposure as the high lights of the subject will permit and to develop carefully, so that the extremes of tone contrast are kept within reasonable limits.

Aside from the open view, the brooks
Suggestions and riversides, the country roads lined
 with trees and the woodland paths offer
 an infinite range of subjects for the camera in winter-
 time. In all these we have to deal with contrasts in

tone and emphasis of form requiring care alike in composition and negative-making. As far as composition is concerned, simplicity and balance are of most importance, and the decorative filling of the picture space will demand all our skill. If the reader can consult Dow's "Composition" at his local library (it is out of print), he will get a host of valuable suggestions applicable in picture-making with black and white masses. From the technical viewpoint, such subjects need special care to avoid, on the one hand, excessive contrasts (under-exposure) and, on the other hand, flatness, grayness and excessive detail in the near-darks (over-exposure or under-development). Success lies in correct exposure, and this can be assured most readily by the use of an exposure meter.

Night Subjects

Now and again, in the country, and more often in the big city, the winter nights bring pictorial opportunities which should not be missed. Here we are dependent upon the aid of artificial light, and a tripod is a necessity. The illumination of the subject is the principal point for attention, disturbing masses of bright light and heavy, unrelieved shadows being fatal to pleasing effects. The most favorable time for this class of subjects is after a heavy fall of snow, and quick work will often be necessary if the foreground is not to be too roughly broken up by passing traffic. The public squares, monuments and notable buildings of a city afford good opportunities for work of this kind. The viewpoint should be carefully chosen so as to avoid distracting lights in the field of view, and a slow, backed ortho plate will generally be found to give better results than an ordinary plate or film. The exposure will range from two to fifteen minutes, according to the illumination of the scene and the character of the immediate foreground, but will usually not exceed five minutes, a rapid lens working at $f/5.6$ (No. 2) being employed.

Given a full moon, the country home in winter time affords an attractive subject at night. For such a subject, let the windows of the house be lighted, choose a time when the moonlight falls on the house to best advantage, select the point of view carefully, to include.

if possible, a few snow-laden trees or bushes, focus the house as sharply as possible and give an exposure of twenty to thirty minutes with the lens stopped to $f/8$ (No. 4). Presuming the exposure to be correct, develop in a dilute developer, aiming for detail and softness. A rambling village street or a country church under like conditions will often yield a picture worth the trouble involved in its taking, and provide an excellent suggestion for a Christmas card or similar purpose.

Winter in Town

Coming now to the city in winter-time, we are again confronted by a bewildering profusion of subjects for the camera. It is remarkable how strangely a fall of snow will change the aspect of familiar town scenes, and very often the change brings beauty and pictorial charm with it. But winter's beauty in the city streets fades all too soon, so that winter photography in town means lively work during the early morning hours. A rapid lens and a fast plate will give the biggest percentage of successful results in this field, unless the reader prefers the haze and mist effects which are best sought in the late afternoon, when a slow ortho plate and color screen are indicated. For the picturing of city life in winter, where we have to contend with movement, the most favorable hours are between 11 A.M. and 2 P.M., with sunlight, if this is available. Under such conditions, the ordinary hand camera, with a lens working at $f/8$ (No. 4), will cover most of our requirements, the abundant light reflected by the snow permitting of the short exposures necessary to street views including life and movement. Dark objects near the camera are likely to give trouble in short exposures, hence it is desirable to set the focusing scale at, say twenty-five or fifty feet, and work from that distance during the day hours.

Frost Subjects

In city and country alike, a hoar frost will bring delightful subjects for the photographer sufficiently enthusiastic to get out-of-doors with his camera before the sun has risen far above the horizon. Here we are concerned with exquisite beauty in detail and the most curiously wrought intricacy of design. The simplest plant or shrub will provide a subject worthy of all our skill.

Notes and Comment

Dealers in photographic goods are complaining that business is extremely dull, the movement of general stocks being inactive and sales largely confined to a few well-known lines. I am not a bit surprised, except that the complaints have been a long time coming. The cause of the dullness is sufficiently shown, to my mind, in the fact that "sales are confined to a few well-known lines." The dealer is carrying too much dead stock in the shape of specialties comparatively unknown, because not advertised, and, therefore, not in demand. Our American manufacturers and importers of photographic goods should advertise their goods more generously and more widely. A glance over the British photographic papers will reveal the fact that the American photographic manufacturer is sadly lacking in enterprise in this vitally important detail of publicity. People must know about goods and want them before they will go to the dealer for them. No business can flourish without advertising.

Carl Ackerman hits the nail on the head in the October issue of his "Photographic News," where, under the caption: *Business Conditions*, he says: "Well-advertised goods are moving, but at the present time it is hard to find hope for producers of standard goods which are not thoroughly well known." The dealer has only himself to blame if he loads his shelves with unknown, unadvertised goods. He should stipulate with the manufacturer that the latter shall advertise his products and, guided by the public demand, confine his orders to those lines which are boldly advertised. There is a tendency among some manufacturers to "cultivate" the dealer and unload their products on the trade, leaving advertising and selling to the enterprise of the dealer. But the problem of salesmanship cannot be solved in this one-sided way, and the wide

awake dealer will insist that the manufacturer create the demand for his products by advertising, leaving the dealer free to "mind his own business" as local agent and distributor. This is the policy followed by the most successful houses in the trade, whose products make up the "well-known lines" people are buying. There are fully two hundred firms devoted to the manufacture of photographic supplies in this country, but hardly a third of them advertise their products. This is rough on the dealer, and I don't wonder that he finds business dull. But he must put the blame where it belongs, and stir up the manufacturer to advertise his products.

I am interested in this advertising of photographic products? Most assuredly so. We all are: consumers, dealers and manufacturers. Every day my mail is burdened with inquiries as to these non-advertised specialties, and every inquiry makes me spend ten cents to boost the business of a firm which hasn't business sense enough to advertise its products. The people want to know; can't buy goods unless they know about them and where they are to be obtained. It is pure buncombe for the manufacturer to talk about "widespread depression," "general business uncertainty," and so on. That these things do not seriously affect amateur photography is sufficiently proved by the steadily climbing Eastman dividends, the high prices prevailing in professional portraiture and a few other hard facts. People are spending money more generously than ever before for every sort of pleasure that interests them. The biggest reason why people are not spending more money with the photographic dealer is—they don't know what to buy, why to buy, and what to do with it if they bought it. The remedy is a wider and more enterprising advertising policy on the part of our photographic manufacturers. The dealers should see to it.



I have many inquiries for the method of making ceramic photographs. The best processes for this work are involved in manipulation and uncertain in result.

Those who seek information about them will find them described in Heliecourt's "Photo-Enamels," the standard text book on the processes. But a simpler way is the use of Autotype ceramic carbon tissues sold by George Murphy Inc., 57 East 9th street, New York, who will gladly send descriptive literature on request.



Gustav Dietz, of the Multi-Speed Shutter Company, 317 East 34th street, New York, tells me that despite the large sales of the new Multi-Speed Junior, the demand for the Regular Multi-Speed Shutter shows continual growth. The flashlight attachment for use with this shutter makes high-speed work indoors as practicable as out-of-doors and opens up new possibilities in home portraiture of old or nervous people, children, etc. During a visit to the Multi-Speed factory a few days ago, I was shown some really remarkable photographs made with the two models of the Multi-Speed Shutter and also with the flashlight attachment. If these could be exhibited generally in our larger cities the capacity of the Multi-Speed factory would most surely be taxed to supply the demand for shutters.



Mr. Joseph Byron, who for many years has devoted himself to the duties of Honorary Treasurer, of the Photographers' Copyright League, of America, has resigned on account of ill-health, and Mr. William H. Ran, 238 South Camac street, Philadelphia, has been appointed Honorable Secretary and Treasurer in place of Mr. Byron. The work of the League is wholly for the benefit of photographers and deserves a much larger following than it has today. Every reader who copyrights his work should send a dollar to Mr. Ran and be enrolled on the membership of the League, asking at the same time, for full information concerning the League and its work.



"The Photographic Dealer" (London) says that "there is only one dealer in cameras and photographic

supplies in the town of Guatemala, in the republic of that name, and he sells nothing but American goods and, of course, has a monopoly. As the population of the town is over 100,000, it appears that there should be an opening for foreign firms wishing to import photographic goods." In the same journal we learn that during last year the United States imported photographic printing papers to the value of almost a million dollars, and films and plates to the value of three-quarters of a million dollars. The photographic exports of the year, to the value of approximately six million dollars, showed an advance of one and one-half million dollars over the exports of the previous year.

Books and Prints

All books noticed in these pages may be obtained from the publishers of THE PHOTO-MINIATURE, and will be promptly forwarded, postpaid, to any address on receipt of the publishers' prices as here quoted.

Practical Photo-Micrography. By J. Edwin Barnard, F.R.M.S. 322 pp. 79 illustrations and 10 plates, containing 47 progressive examples of micro-photographs. 8vo. Cloth, net \$4.20. New York: Longmans, Green & Co. For sale by Tennant and Ward, New York.

Despite the increasing use of photo-micrography in the sciences and industries, and the many radical advances made in photo-micrographical methods of recent years, no handbook to this special field, worthy of the name, has been published during the past decade. Hence the thousands of workers who have use for photo-micrography will welcome this volume, wherein an expert with a special gift for teaching and demonstration has gathered together the definite advances made in photo-micrography, and describes the methods and processes of today clearly and succinctly, with a wealth of illustration and example.

It is not an easy matter to describe the details of a highly technical process in such a manner that the reader can straightway go and produce exactly the same results. Sometimes, indeed, it may be easy to show another person how to do it, but many difficulties lie in the way of the written description. The author of the present book, Mr. J. E. Barnard, has here undertaken a simple and straightforward account of the methods which a very wide practical experience has shown him to be best for the photographing of microscopic objects. The subject is treated from first-hand knowledge, and the result claims the attention of all who wish to take up a new and most fascinating study or to extend their knowledge as to the best practical methods.

After a short description of such microscope stands as are most suitable for the work, the author enters in fuller detail into the optical equipment—objectives, oculars, condensers, and collecting-lenses. The various types of illuminant and illumination are fully described—a subject as to the paramount importance of which no photo-micrographer needs to be reminded.

Upon the illumination success primarily depends, and the seventh and eighth chapters, by their insistence on the great advantage to the amateur or beginner of a good deal of preliminary experimenting, are intended to give him a firm grounding in the art of illuminating an object. For such preliminary work, nothing can be more instructive than the observation of the image projected on an opaque screen.

Color-filters for securing contrast, or for more perfectly rendering color differences in monochrome, are next considered, and are followed by plates and their development. Chapter XI deals with photo-micrography by ultra-violet light—a method with great possibilities, but at present only suitable for practised experts—with stereoscopic micro-photographs, and with the production of colored lantern slides.

Lastly, a series of progressive examples, ranging from botanical, bacteriological, and pathological subjects to diatoms, foraminifera and metallic sections, and each chosen to show some special point in the structure or lighting, are illustrated by ten collotype plates.

The beginner and the advanced worker alike will find help and satisfaction in this book. I recommend it with pleasure to all who have need of practical instruction in photo-micrography.



Photography: Its Principles and Applications. By Alfred Watkins, F.R.P.S. 333 pages. Illustrated with a frontispiece in colors from an autochrome by the author. Net, \$2.00; postage, 18 cents. New York: D. Van Nostrand Co. For sale by Tennant & Ward, New York.

Those who are familiar with the work of Alfred Watkins in photography, and especially with the prac-

tical advances he has made in solving for us the problems of exposure and development, will share my pleasure in this new volume from his pen. Mr. Watkins writes only from his own personal knowledge and, therefore, what he says has a practical value far above and beyond the writings or compilations so often foisted upon us as "practical textbooks."

The purpose of this volume is to furnish the photographic worker with a handbook covering the theory and practice of photography in its everyday applications, omitting only the art of picture-making. Necessarily, coming from Alfred Watkins, the treatment of the subjects of exposure and development is unusually full and complete. This is as it should be. For the rest, the table of contents will show the general arrangement and scope of the book, which I commend as wholly practical and thoroughly well done. Preface. Chapter I. First Principles. II. Lenses. III. Exposure Influences. IV. Practical Exposure. V. Development Influences. VI. Practical Development. VII. Cameras and Dark Room. VIII. Orthochromatic Photography. IX. Printing Processes. X. Hand Camera Work. XI. Enlarging and Slide Making. XII. Color Photography. XIII. General Applications. XIV. Record Applications. XV. Science Applications. XVI. Plate Speed Testing. XVII. Process Work (Photo-Mechanical Printing). Addenda. Index.



CONTRIBUTED TO THE COMPETITION FOR WOMEN
PHOTOGRAPHERS BY

W. and G. Parrish, St. Louis

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Home Portraiture

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The making of portraits at home is one of the most interesting of the innumerable ways in which we can use the camera for pleasure or profit. It is so simple as to be within the capacity of the beginner in his first year with the camera, and it can be developed in skilful hands to yield either pictorial fame or a lucrative means of livelihood, according to the ambition of the individual worker. It offers a field wherein the worker can control all the conditions essential to his success; wherein he can work at his convenience regardless of the weather, season or time of day; and a field wherein the results repay abundantly all the patience, intelligence and skill we put into it. In the face of this altogether truthful relation, the reader is doubtless already asking: Why, then, does the average amateur fail so miserably in his attempts at home portraiture? The answer is simple enough. The average amateur, having a little experience in outdoor work with the hand camera, plunges incontinently into portraiture indoors without a thought of the difference between this and that. Which is as if an ambitious bride, knowing how to boil eggs with fair success, were to set about boiling beets, giving four minutes alike to eggs and beets. And yet how simple a matter it is to boil beets properly if you know how to go about it in the right way.

Two Vital Lessons

Here, then, we begin to learn how to make portraits at home, presuming only some little experience in photographing out-of-doors. The first lessons will concern the problem

of illumination and the essentials of portraiture, these two vital things being generally overlooked by the average amateur, to which lack of forethought most of his difficulties and failures in home portraiture may be traced. When once we have a good grip on these basic factors, all the rest of the work will be comparatively easy and success certain.

Illumination Accustomed as he is to photographing
Indoors out-of-doors on bright days, the amateur taking up home portraiture utterly fails to realize the great difference there is between the intensity or photographic power of light indoors and outdoors. There is such an abundance of light out-of-doors and it is so widely diffused; indoors the light is so unequal in volume and its distribution so unsatisfactory. The eye readily accommodates itself to this difference, filling the indoor shadow masses with details which it can not see at a glance but knows to exist. The photographic lens and film, on the other hand, are painfully exact in giving us only what they can gather during the brief period of exposure. This explains, in part, why the beginner's first home portraits are so woefully under-exposed, so lacking in gradation of tones and semitones, and so excessive in their contrasts. Hence the common impression that there is not sufficient light in the home for really good portraiture. As a matter of fact there is almost always plenty of light in the average home for our purpose, if we know how to control and use it in the lighting of our subjects. This is considering daylight work only. If we are working at night by artificial light, the problem of illumination resolves itself into the use of a sufficient quantity of flash powder, properly directed to light the subject and its accessories.

Right in the beginning, then, the beginner must familiarize himself with the altered conditions of illumination under which he has to work indoors. He must know how light acts when confined, as in a room; how abruptly its intensity falls away as we go away from the window or other light source, and how feebly it penetrates the shadows of objects in its path. With this under control, the distressingly under-exposed effects so general in home portraits will be completely obviated.

**How to
Overcome the
Difficulty**

This special knowledge can be obtained by a little observation and experiment during leisure moments, with the aid of any exposure meter which gives what is known as a light factor (a figure representing the actinic power of the light) by the use of sensitive paper, such as the well-known Wynne, Watkins and Imperial exposure meters. There is no need to use camera, film or subject for these first experiments. By exposing such a meter to the light, say near a window, and noting with a watch the time required for the sensitive paper to match the "standard tint" in color or depth of tone, we get a figure which represents the "actinometer time" of the light at that hour and place. Now if we compare the actinometer time so obtained, with the time required to get the standard tint in another part of the room or house, where there may be either more or less light, we shall get a definite idea of the relative intensity of the light in both places. If, for example, the first test at the window gave us the standard tint in ten seconds, and a second observation, made at a distance of five feet from the window, gave us the standard tint in sixty seconds, we know that the light there is six times weaker than at the window, and, consequently, that a subject requiring one-half second exposure at the window would need three seconds exposure if placed five feet away from the window. By repeated experiments of this kind, wherein we may extend the theoretical use of the meter to give us the actual exposures needed under imaginary sets of conditions, the amateur will quickly gain a clearer understanding of indoor illumination and exposures than can be had from months of haphazard work with camera and film. The saving of time and material thus effected, when he comes to actual work, will, of course, repay the cost of the exposure meter a hundred times over.

This practical, working knowledge of illumination indoors is the first and most important essential for success in home portraiture. The use of an exposure meter, as suggested, is the simplest and least expensive way of getting this necessary knowledge. Before ever you begin work with your subjects, or to use plates or

film, the meter will tell you just what the exposure will have to be to get a good negative at the time and in the place chosen. It may be that it will tell you that, with the lens equipment at your disposal, the portrait desired is impossible at the time and place chosen or under the conditions available; thus saving you all the trouble and disappointment which would be involved in the actual attempt, or pointing out the necessity for the use of flash powder, to provide sufficient light to overcome the limitations of your lens equipment.

**Essentials in
Portraiture**

Given this practical acquaintance with the basic problem of indoor illumination, we come to a consideration of the essentials of portraiture, concerning which most hand-camera workers are naturally ignorant. This is a very big subject, and can be dealt with here only in a very brief way.

In making a portrait, we are attempting to portray the personality of the subject,—something altogether different from making a representation of an outdoor scene. Personality expresses itself chiefly in the features, but we see it also in the characteristic attitudes of a person, in dress, and a thousand other little details by which we recognize one we know among many others who are unknown to us. In portraiture, the aim is to reproduce personality in the most pleasing way, while preserving the prime essential in all portraiture, to wit, likeness. This is accomplished by securing, first: a pleasing or characteristic arrangement of the subject within the limits of the picture space; second: by so lighting the subject as to bring out or emphasize its most pleasing characteristics; and, third: by so controlling the general distribution of light and shade throughout the picture as to secure a pleasing or harmonious arrangement of tones in the composition of the portrait. If the reader will look carefully at a clever professional portrait of a familiar friend, this brief statement of the essentials of portraiture will be made quite clear. The professional portraitist sums them up under the heads: posing, lighting and chemical effect, a formula which excites the derision of the pictorialist, since it takes no account of pictorial values or effects. But, despite its crudity, it does express the three vital points

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CONTRIBUTED TO THE COMPETITION FOR WOMEN
PHOTOGRAPHERS BY

Sara F. T. Price, Mt. Airy, Pa.



CONTRIBUTED TO THE COMPETITION FOR WOMEN
PHOTOGRAPHERS BY

Alice Austin, Boston, Mass.

in photographic portraiture, and will help the beginner in securing likeness, altogether apart from any pictorial value which he may or may not be able to give his work.

Avoid Professional Effects Not that the home portraitist should think for a moment that he must strive after the conventionalized lighting and posing effects seen in professional portraiture. Not at all. The charm of the home portrait lies largely in its lack of these conventional effects, instead of which it gives us a more pleasing simplicity and naturalness, together with a more intimate touch of the personality of the subject than we usually get in the professional studio portrait. But the amateur should realize in the beginning that the making of a successful home portrait depends very largely upon the arrangement and lighting of his subject, and that pleasing results do not happen of themselves, but are the outcome of careful consideration and the intelligent treatment of the subject before the exposure is made.

Posing or Arrangement As far as posing is concerned, the beginner will do well to confine his efforts to the obtaining of simple and natural arrangements, seeking only to correct or avoid any awkwardness observed in line or form, whether in the subject or in the accessories coming within the picture. The principal thing to avoid is distortion. This is usually caused by permitting the hands or knees of the subject to project nearer the camera than the face. Most people require a little posing (or arranging), so that all the different portions of the figure shall be fairly well within the plane most sharply focussed. Thus, if we photograph an old lady, front view, with her hands folded in her lap, the two hands will be much too large in the portrait because our focus will be upon the eyes. What we must endeavor to secure, then, is a natural, easy position, such as the subject would unconsciously take in every-day life, and with the figure well within the limits of the focal plane.

Simplicity Apart from distortion, which is a prominent fault in amateur portraiture, the desirability of simplicity should be emphasized. It is not wise to permit too many different

things, of varying shape and color, to enter into the composition of the picture. Thus, a simple figure pose of a young girl reading at the window is to be preferred to the usual picture of this kind, wherein the subject is inexplicably confused by incongruous surroundings,—a picture on the wall seeming to balance its corner in her hair, a flower pot and stand, footstool, cushions, and draperies all fighting with a figured wall-paper for recognition. When we can not avoid prominent lines in the composition of a portrait, as, for instance, in photographing a child in a chair, care should be taken that these lines do not run into the figure in a disagreeable way. Thus, if the back of the chair crosses the neck of the child, change the chair; or, if the lines of the chair run out of the picture space at awkward angles, change the position of the chair to secure a more pleasing and harmonious arrangement.

Naturalness: The arrangement of the figure in making a portrait is generally supposed to be
Ease a work of some difficulty. It is really a

very simple matter, provided one has the confidence which comes from a knowledge of what is wanted. The two things most desirable are ease or naturalness of position, and as much grace as can be secured as far as the disposition of the lines of the subject are concerned. These may be readily secured if we avoid handling our subject more than is really necessary by changing the position of the camera to secure a different view-point, and by being quick to recognize an interesting pose when the subject naturally assumes it. It is a mistake to make the subject change his or her position several times in the hope of securing in this way a more desirable arrangement of the figure. This method invariably results in nervousness or consciousness on the part of the subject. A few hints may be helpful. Stout people rarely give pleasing portraits when made to sit in a cushioned chair. A sitting pose, with such an accessory, seems to convey the impression of greater width or plumpness than the subject naturally possesses. In the same manner, the height or slimness of a person naturally tall is accentuated by a standing pose, with extended vertical lines appearing in the picture. Contrast or obvi-

ous comparison of proportions, in size or form, between the subject and anything else in the picture are therefore, generally, to be avoided. Thus, I have seen portraits of ladies showing a piano behind the figure. In such a case, the figure being nearer the camera than the accessory, one naturally compares the proportions of the two. Similarly, the heavily built figure of a man seated on a small chair gives one the impression of abnormal size. The contrast in tone between the figure and the background also emphasizes the apparent size of the figure. As a rule, it is wise to harmonize the two, so that the figure gradually loses itself in the ground behind it, although it should always be possible for the eye to separate them without effort.

The lines (or shapes of the various
Lines forms) in and outside of the figure have very much to do with one's pleasure in a portrait. Lines leading boldly from the figure to the edges of the picture space are, generally speaking, to be avoided. This applies with special force to the lines formed by the chair or other accessory supporting the figure. The principal points to be looked after in this detail are that, while the figure is seen to be properly balanced (or supported), the lines shall be well contained within the picture space, flowing in curves rather than inclining to form angular shapes. If the general outlines of the figure roughly conform to a pyramid or ellipse, the portrait will be more pleasing to the eye than a haphazard conglomeration of lines can be. But all this is a matter of educating the eye,—of feeling and taste; and it is not wise to give definite rules. A careful study of such books as Hogarth's "Book of Beauty" (to be found at the large public libraries) will give the reader the right direction. By close attention to these details we shall secure ease and repose, a pleasing sense of harmony, and good taste in our portraits.

Lighting the subject in portraiture is
Lighting one of those things which cannot be taught successfully without demonstration. But if the reader will remember that the single purpose of all schemes of lighting is simply to show the personality of the subject in the most interesting or

most agreeable manner, a few experiments will suffice to put him in the right way. For these preliminary experiments we need a room with a window facing north, and having an open, unobstructed view, *i.e.*, not shaded by trees or near-by buildings. The higher the window, the better. Sometimes a hall or other room which has a window placed high in the wall will offer peculiar advantages. This we will already have determined in our experiments with the exposure meter around the home. If we cannot get a window with a northern aspect, a window facing south, screened with white muslin, may be utilized with success; but the lighting will, of course, be variable here and more difficult to manage.

Having chosen a suitable window, we make actinometer (exposure meter) tests at three, five, and seven feet from the window, calculating for the use of the largest stop in our lens. This will give us an indication of how far away we may place the subject, and yet not be obliged to unduly prolong the exposure. Where possible, about five feet away from the window and slightly behind it should be chosen. In many rooms lighted by two windows, there is less than twenty-four inches between the outer edge of each window and the side of the room. Where this is the case, we can sometimes make one window completely dark, and work with the light entering through the other. This will give us room to place the subject well back from the light, and yet keep sufficient space behind the figure to obviate getting a portrait in which the figure seems to be pasted on the background. This fault is due to too close proximity to the background, and should be avoided as far as possible. At the point mentioned above, we should get a fairly round lighting, soft gradations from light to dark, and a desirable amount of shadow. Remember that there must be only one source of light, and that the shadows about a face or figure have quite as important a part to play in the making of a portrait as that played by the lights.

The idea that the light must flood the subject is erroneous: so light the subject that its parts stand out in pleasing relief and with a fairly even balance of light



CONTRIBUTED TO THE COMPETITION FOR WOMEN
PHOTOGRAPHERS BY

Pearl Grace Loehr, Brooklyn, N. Y.



CONTRIBUTED TO THE COMPETITION FOR WOMEN
PHOTOGRAPHERS BY

O. and O. E. Newcomb, Middlefield, Ohio

and shadow. If the light is too weak, we must work nearer the window ; but this makes it difficult to avoid harsh contrasts. Thus one side of the subject will be brightly illuminated, the other dark with heavy shadows. By screening the window with thin muslin we diffuse the light, and by turning the figure properly we can get good modeling in the face without excessive contrasts.

A few experiments will show that, as a rule, the lower part of the figure receives an undue proportion of light. This is caused by the fact that the average house window is too low. We cannot increase its height, but we can cut away part of the light by blocking the lower third of the window with a shawl or piece of dark drapery. In this way we can secure a better lighting on the face and shoulders. The judicious use of a white sheet or reflector, about four or five feet away from the subject, on the shadow side, will light up that side of the figure ; but we must be careful not to overdo this, or flatness will result. Roundness and modeling are the two points to be considered. A little observation will tell us when the reflector is desirable or otherwise with the subject in hand.

Having now a fairly clear grasp of indoor illumination and the essentials of portraiture, the reader can confidently take his camera and subject, choose a favorable time and place, and set about the making of his first home portraits. I have said nothing about equipment or apparatus, first, because the amateur must perforce use the camera and lens he has or leave the work alone; and second, because almost all hand cameras which can be used on a tripod will suffice for the making of pleasing home portraits if the worker knows how to use them. Some of the happiest home portraits in my portfolio were made with the 1 A Kodak, with and without the portrait adapter. And some of the best portraits at the great exhibitions of recent years were enlargements from small negatives made with the 3A Kodak. Nevertheless it is true that a focusing camera with a ground-glass or focusing screen will allow of more convenience and certainty in working than the

average hand camera. The ideal home portrait camera is undoubtedly one of the reflecting mirror type, fitted with a rapid lens of reasonable focal length. With such a camera one can see the subject just as it will appear in the picture right up to the moment of exposure, and note any change in expression or position,—big advantages in photographing children in the home. Whatever camera is used, the rapidity of the lens is an important factor, because of its direct relation to the exposure: For example: the hand camera fitted with a lens working at $f/8$ requires an exposure twice as long as that needed by an $f/5.6$ lens to do the same work on the sensitive film. This means that where the exposure called for is one second with an $f/8$ lens (presuming this to be the largest available aperture of the lens on the camera in use), we run large risks of movement with some subjects in an exposure of this length, whereas, if the lens worked at $f/5.6$, we could cut the exposure to a half-second and get a successful picture.

Light-Ground Portraits

Among the most pleasing of home portraits of the younger people are those which show the subject in white or very light-colored clothing against a white or light gray background, so that the face, hair and hands are the only dark tones visible in the picture. Mr. and Mrs. Cadby, two English workers, are well known for their mastery of this special method. I am sorry that I cannot show an example of their work here. As far as I know, they have not described their methods in detail, but the following hints will set the reader working along the right road, and success will come with a little patience.

See that the subject is dressed in white, without colored ribbons. A dress which has been worn a little is better than one stiffly starched from the laundry. Secure a white blanket without creases to serve as a background, unless you can get a light gray ground from your dealer. Set the camera, a white enameled chair, and the background, ready for use out in the garden at the shady side of the house, on a bright day without sun. Focus the chair carefully, place the subject and get the expression desired. Give double the normal exposure, and develop the plate or film in a dilute de-



CONTRIBUTED TO THE COMPETITION FOR WOMEN
PHOTOGRAPHERS BY

Marion Creighton, Newark, N. J.



CONTRIBUTED TO THE COMPETITION FOR WOMEN
PHOTOGRAPHERS BY

Jane Reece, Dayton, Ohio

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veloper, such as rodinal 1:40. Care should be taken to avoid letting the subject cast a shadow on the background, which simply means that the light must be well diffused and the figure not too near to the ground. Cover the plate during the whole time of development and do not over-develop, or the delicacy of light and line effects which gives this kind of picture its peculiar charm will be lost. It is generally advisable to print this class of subjects on platinum paper, using a carefully adjusted vignetter, and printing in the shade with tissue over the printing-frame. The professional studio method of making these light-ground portraits is fully described on page 183 of *THE PHOTO-MINIATURE* No. 112, *Lighting in Portraiture*.

Home Window Portraits Home portraits showing the subject seated at a window, with a more or less distinct suggestion of the exterior seen from the window, offer opportunities worth cultivating by home workers. Halation and abrupt contrast of light and shade are the two principal difficulties: but, when once they have been overcome, the home window will yield an inexhaustible variety of charming effects in pose and lighting. In the July, 1911, issue of "*American Photography*," an illustrated symposium on this subject gives the experiences of half a dozen workers, with helpful diagrams and a few interesting results. The following excerpts may suffice to guide the reader in his first attempts with this type of picture.

Anderson's Method The first method, suggested by Paul L. Anderson, is to avoid halation, and compress the range of tones in the subject within the compass of the printing-paper to be used, by employing a double-coated, non-halation plate, giving a generous exposure and using a dilute developer. Mr. Anderson shows two portraits of a lady seated at a long, low, recessed window, this type of window being especially desirable for the purpose. Strong sunlight falls upon the figure, the window casement and floor, giving a pleasing variety of light and shade. The room measured 20 x 40 feet, and had three other windows shaded by heavy trees, the walls of the room being fairly dark in tone. The camera used was an ordinary

6½ x 8½ view box, fitted with a single achromatic lens of 10½ in. focal length, and a Burke & James Ideal color filter (x3). He used a Standard Orthonon (double-coated orthochromatic) plate, but suggests the Cramer Portrait Isonon, with an adjusted screen, as equally serviceable.

Working in early November at 11 A. M., with strong sunlight falling on the window, Mr. Anderson gave his subject an exposure of 15 seconds, developing the plate with a metol developer made up as follows: Water, 40 ounces; metol, 75 grains; sodium sulphite (anhydrous), 300 grains; sodium carbonate (anhydrous), 420 grains; potassium bromide, 8 grains. As an alternative, he suggests rodinal 1:40. Care should be taken not to overdevelop, it being preferable to underdevelop, and afterwards intensify if this is necessary. Should the slightest sign of fog appear in the necessarily prolonged development, the plate should at once be placed in the fixing bath and intensified when dry if desired. The type of negative to aim at is one having full detail in the shadows, thin high lights and almost clear glass in the lowest tones. Print on platinum paper, in diffused light or shadow, with ground glass or tissue paper over the printing-frame.

The pictures illustrating Mr. Anderson's paper were soft in definition and modeling, as one would expect from the lens and general treatment employed, the shadows being well illuminated, and the values pleasingly retained without any trace of halation. While preferring to work wholly with natural light, Mr. Anderson points out that the same results could be obtained, and the exposure shortened, by the use of a reflector and supplementary lighting; say, 3 or 4 seconds daylight for the high-lights, and a flash, consisting of a gram. of Agfa powder or a No. 2 Eastman flashsheet, care being taken to use the flash at such a distance as not to overpower the natural lighting and the normal cast shadows.

Another method is given by H. M. Long's Method Long. It is extremely simple, but the results are not so pleasing as those obtained by the first method. Mr. Long says nothing of this plate or that, but uses a reflector to throw light into

the shadows of the picture, and gives an over exposure running into seconds. The plate is next immersed for three minutes in a 10 per cent solution of potassium bromide, after which it is slowly developed in a single solution developer diluted to thrice its normal bulk with water, development being carried to the usual intensity. The final stage is the use of a "soft" development paper for the making of the print.

Glaister's Method

A third method, described and convincingly illustrated by A. H. Glaister, consists in the employment of a properly balanced combination of daylight and flashlight, so that the flash will bring out the figure and interior details, the daylight giving the outside view without exposure or halation. The flash is made a little behind and to one side of the camera, and a small stop is used in the lens to give time to set off the flash without over-exposing the exterior view. In one example shown by Mr. Glaister, the plate used was a Hammer extra-fast, the lens aperture was $f/32$ and the exposure was one second. The flash consisted of $\frac{3}{4}$ ounce of flash powder, made by mixing together equal parts of pure powdered magnesium and potassium perchlorate (which I wouldn't advise the reader to attempt). A second example, showing a single figure at a window examining a print, was given half a second exposure with $f/16$, $\frac{1}{4}$ ounce of the flash powder being used.

Apart from these specific instances, it is obvious that a study of the special conditions in each case will indicate modifications which, in many cases, will considerably simplify the procedure. For example, with a well-lighted room interior and a subject in a light-colored dress and a fairly diffused illumination indoors and out, a rapid plate, well backed, might cut the exposure down to four or five seconds. Some very charming effects, too, are obtainable with the figure and interior details slightly under-exposed, this permitting of shorter exposures

Flashlight Work

For those who cannot use the daylight hours, as well as for the steadily increasing number of amateurs who prefer to use artificial light in their indoor portraiture, the use of one

or another form of flashlight offers an easy and certain method of getting delightful pictures of home subjects.

Flashlight photography in the home is a very simple matter, but the beginner must needs know many things before he takes up the work if he would be reasonably successful without the usual discouraging first attempts. The light is supplied by the combustion of an explosive powder. This flashlight powder comes in various forms. In the popular Eastman flash sheets it is incorporated in a sheet of paper, the burning of which gives a certain amount or volume of illumination. It also comes in the form of cartridges, as in the Eastman flash cartridges, which are ignited in a special form of holder known as the Eastman flash pistol. Or we can buy one of the many brands of loose flash powder in the market, such as the Agfa Blitzlicht, and use it in a hand or stand lamp, such as the simple and very efficient Agfa flashlamp, or the Eagle or Royal stand lamps. Beyond these there are many more ambitious flashlight devices or lighting systems, with which we need not concern ourselves here, as those mentioned will suffice for all ordinary requirements in home portraiture.

The first step in taking up any sort of flashlight work is to decide upon the flashlight material and apparatus to be used, and then to thoroughly familiarize oneself with their handling and manipulation. This should be done before any photographing of subjects including life is attempted.

In the use of any and all flashlight material the reader should realize from the beginning that all forms of flash powder are inflammable and explosive. For this reason care must be used in the handling of all flash powders. Whether it be a flash sheet or a cartridge, loose powder in a lamp or ignited in little piles or paper bags on a dust pan, it should not be ignited near to draperies or hangings, or near the face or hands of the person. In taking powder from its bottle or container; in loading the charge into a lamp; and in all the necessary handling of the powder, avoid all unnecessary friction and the proximity of light or flame. These warnings should not make the reader nervous or timid in his use of flash



CONTRIBUTED—NOT FOR COMPETITION, BUT FOR
GOODWILL—BY

Mathilde Weil, Philadelphia



CONTRIBUTED TO THE COMPETITION FOR WOMEN
PHOTOGRAPHERS BY

Mary H. Tannahill, New York

powders. With reasonable care they are perfectly safe, the accidents we read about in the papers being almost invariably the result of carelessness or the reckless handling of flash material.

**The Position
of the Light**

The two vital points in flashlight portraiture are: the position of the light, and the amount of light (or powder) needed to secure a well-illuminated picture of the subject within the longest exposure time permissible with the subject in hand or the speed of the lens or film employed. Let us discuss the first point. Since the flashlight is used to supplement or take the place of daylight, the position of the light (i. e., the location of the point at which the flash is ignited) will naturally vary according to the subject and the style of lighting desired. In the case of the bust or head and shoulders portrait, the light should generally be placed about seven feet from the floor, or about three feet higher than the head of the subject, and about six or eight feet in front of the subject, the lighting effects varying according to the angle formed by an imaginary line drawn from the light to the subject. Whatever the position of the light, it should be so placed that it does not give a reflection in the lens; with this seen to, the light can be placed at any desired point on an imaginary half circle having a radius of six or eight feet in front of the subject. The nearer the light is to the subject, the more forcible will the lighting be and the heavier and more abrupt will be the shadows on the face of the subject. Where this nearness to the subject is unavoidable, the use of a diffusing screen of white muslin and, possibly, of a reflector placed on the shadow side of the subject, will soften the lighting and subdue the heavy shadows. Soft and pleasing lightings are obtained by using more light and working at a greater distance from the subject. For three-quarter and full length figures, the light should be placed higher than for the bust portrait, and for small groups a fairly large reflector will usually be necessary. Where changing the position of the light is difficult, variety of effect in lighting can be obtained by changing the position of the subject, or the direction of the head in a bust portrait, or the position

of the camera. It is, in fact, in this latitude in the use of a localized and yet movable light source that the flash light offers so large an advantage in home portraiture. By persistent experiment along the lines here very briefly indicated, the reader will quickly realize the power put into his hand by modern flashlight methods, and will find in them the easiest and surest means for successful home portraiture.

**How Much
Powder**

The amount of flash powder to use is a detail which can only be determined by experiment, depending upon the style of lighting desired, the character of the subject, color of dress, etc., the longest exposure permissible with the subject, lens and film in question, the distance of the subject from the light, and so on. For a fairly light subject, a child in a white dress, in a room with light-colored walls and of average size, an Eastman flash sheet No. 1, ignited at six feet away from the subject, will give a well-exposed picture with a lens working at F8. For a dark-complexioned subject, under the same conditions, a No. 2 or No. 3 flash sheet might be required. If Agfa Blitzlicht is used in an Agfa lamp, then 8 grains and 12 grains of powder will replace the flash sheets under the conditions mentioned. So much depends, however, upon the factors stated in the earlier part of this paragraph that exact formulæ are out of the question. For small groups the Eastman flash cartridge or from 12 to 20 grains of Agfa powder will give sufficient illumination under normal conditions. A reflector of fairly large size is a big help in getting evenly lighted pictures of small groups.

**A New
Power**

Those who possess a Multi-Speed shutter have a simple and sure flashlight method, permitting of a wide range of subjects and conditions in the new flashlight attachment made for use with this shutter. This is a neat little device attached to the Multi-Speed shutter and electrically connected with two or three flash pans of special design, the exposure being made by electrical contact so that the flash powder is ignited slightly ahead of the shutter movement, this causing the exposure to be made when the flash is at its highest efficiency. With this

attachment an exposure of $\frac{1}{200}$ of a second is possible, so that its use brings all sorts of subjects within practical reach of the home worker, from portraits of old or nervous persons to groups of children at their play in the home. Of all the flashlight inventions of recent years this one seems to me as that most worthy of looking into because of the wonderful possibilities it opens up in home photography.

For the rest, the development of home

Development portrait negatives calls for the use of a dilute developer, of which rodinal, 1 part to 30 parts of water, is typical. If, as will rarely happen, the negative shows overexposure, development should be completed in rodinal, 1 part to 10 parts of water. But I use normal tank development in my own work with average success.

Notes and Comment

Late though it is and "out of due time," I cannot let this issue of *THE PHOTO-MINIATURE* go out without a word in loving memory of my friend H. Snowden Ward, who died here in New York, December 7th, 1911. In his untimely death photography has lost irreparably and in innumerable ways, since no other within my day and knowledge has given to its service such splendid energies or so untiring a devotion. Of his public activities my readers are doubtless sufficiently informed by the notices of his career given in other journals. But the man himself was greater than all his works and his brave spirit finer and more lovable than all his dreams. And to myself, who knew him as man and more than brother in so many adventures and through so many years, it is infinitely sad that he had to go so soon—without farewell—R. I. P.



Among the new books announced by Mitchell Kennerley, New York, I note "The Door in the Wall, and Other Stories," by H. G. Wells. Illustrated with photogravures from photographs by Alvin Langdon Coburn. Apart from the delightful cleverness which one is always sure of in anything coming from H. G. Wells, this sumptuous volume, with its ample pages (11 x 15 inches) printed in a fair type designed for this work by F. W. Goudy, affords the many admirers of Mr. Coburn a welcome chance to see some of his most recent work. The edition, printed on hand-made paper, is limited to six hundred copies, and the price of the book is \$7.50, net, with the possibility of an advance after publication.



The strong endorsement given to the efficiency of the Multi-Speed Shutter by Dr. Adolphe Abrahams, the

well-known English authority on photographing outdoor sports, has called forth a somewhat abusive letter (written, we are sorry to note, by an American), insinuating that Dr. Abrahams was perhaps "interested" in the success of the Multi-Speed Shutter in England. To any one at all acquainted with the personal character of Dr. Abrahams, and the splendid work he has done in helping the world to a better appreciation of the difficulties and possibilities of outdoor sports as a field for the camerist, the insinuation referred to was peculiarly offensive and altogether uncalled for. It is impossible for a fair-minded reader of Dr. Abrahams' many contributions to photographic literature to suspect him of any unfairness.

I note with pleasure that in the last issue of "The Amateur Photographer," London, he repudiates the insinuation with considerable warmth. The final paragraph in his letter reads, "My last words on this subject of efficiency of shutters are: With a Multi-Speed Shutter you will obtain better exposed and sharper negatives of the same rapidly moving objects than with any focal-plane shutter."

In view of the very extensive experimenting which Dr. Abrahams has done with focal-plane and Multi-speed shutters, this final pronouncement is extremely interesting, and should, in some measure, compensate Mr. Gustav Dietz, the inventor of the Multi-Speed Shutter, for the difficulties and prejudice against which he has had to contend, in placing the Multi-Speed Shutter before those who need it.



Supporting Dr. Abrahams, there appeared in the same issue of "The Amateur Photographer" a letter from Messrs. Ross, Ltd., the English agents for the sale of the Multi-Speed Shutter. They say: "Shortly after the introduction in England of the Multi-Speed Shutter, Dr. Abrahams expressed great scepticism as to the inventor's claims, and his surprise that we should associate ourselves with such extraordinary claims. We suggested that it might be well for him to make actual experiments, and for that purpose we lent him a Multi-

Speed Shutter, and had the satisfaction shortly afterward of receiving a letter entirely withdrawing his former criticism, and enclosing for our inspection some excellent photographs of subjects which, he stated, he had repeatedly failed to obtain with any other form of shutter."



If there is truth in the rumor that certain trade restrictions as to selling or not selling this or that have been abolished, and photographic dealers can sell anything they desire to sell, then my remarks in the last issue of *THE PHOTO-MINIATURE* on the necessity for a broader advertising policy on the part of many of our American photographic manufacturers will bear stronger emphasis. There can be no doubt about the fact that the dullness of business of which dealers generally are complaining is largely due to a lack of advertising enterprise among our manufacturers. The millions of camera users from coast to coast have little or no idea of the thousand-and-one helps and working conveniences available for their daily needs, simply because these things are not advertised. If the dealer will insist that the manufacturer shall advertise and create a demand for his goods before he (the dealer) will carry the goods on his shelves, the present state of affairs would be quickly changed to the benefit of dealers and consumers alike.

Take this issue of *THE PHOTO-MINIATURE* as an example. Here I am making thousands of amateurs and professionals interested in the possibilities of home portraiture. What about the lenses especially suitable for this sort of work, the most convenient tripod for indoor use, the plain and graded backgrounds so desirable for home portraiture, a serviceable, reasonably-priced stand camera, a portrait attachment for the average hand-camera lens of short focal length, flashlight conveniences, and so on? How can the interested reader be expected to want this or that unless he is informed of its existence, and where he can see or buy it? It is folly to say, as many manufacturers say, that any one interested will go to his dealer for what he wants. The dealer is complaining that the public does not come to

him, does not seem sufficiently interested, does not buy much outside of the few well-known, because well-advertised, lines. Our manufacturers need an awakening, and the dealers who are urged to invest their business capital in the manufacturers' products must do the awakening. It cannot be started too early.



The catalogues published annually by Hirsch & Kaiser, 218 Post street, San Francisco, are always models of their kind in comprehensiveness and convenience of arrangement. But, year by year, they seem to be more and more attractive in make-up and illustration. The 1911-12 catalogue, just received, is as dainty a bit of book-making as the most fastidious could desire, the cover being especially beautiful. Its completeness, however, is its best feature; its 150 pages listing and illustrating almost every convenience desirable in amateur and professional photography. I commend the service of this well-known house to all readers of THE PHOTO-MINIATURE within workable distance of San Francisco.



To make and sell over three hundred thousand anastigmat lenses is no small boast, in these days of feverish competition. The claim is made by the C. P. Goerz Optical Works, of New York and Berlin, which this year celebrates its twenty-fifth anniversary. Every one who owns a Goerz lens knows, of course, that this remarkable success is based upon the splendid quality of the Goerz lenses; but I have my own conviction that much of the success is primarily due to the lens information service which Messrs. Goerz have for years offered to photographers. A good example of this lens information service is given in the new pocket catalogue just issued by this firm, which is a marvel of compactness and condensed usefulness. The many diagrams and illustrations add to its attractiveness. A postal-card to the C. P. Goerz Optical Co., 317 East 34th street, New York, mentioning THE PHOTO-MINIATURE, will bring a copy to any one desiring it.

Some of the most interesting night photographs I have seen have appeared in "The Edison Monthly," published by the New York Edison Co., New York City. These illustrations are, of course, intended to show the uses of electric lighting in city life, but the diversified application of the electric light is more often than not pictorially attractive. Thus, in a recent number of the "Monthly," there are clever photographs of the illuminated streets of the Italian quarters, on the occasion of the church festivals which make life so picturesque in that quarter of our great city.



I hear good reports from many quarters about Duratol, the new rapid developer introduced by Schering & Glatz, of New York. One photographer states that he was surprised to find that Duratol would develop glossy gaslight papers without the friction marks which so frequently occur in handling this class of papers, and Duratol proved itself more economical than the average N. A. developer in use. By the use of dilute Duratol developer, prints of a very pleasing warm brown-black tone can be obtained with most of the development papers in the market.

As a non-poisonous, economical developer, stable in solution, and giving negatives free from fog, Duratol is certainly worth a trial; and I believe that Messrs. Schering & Glatz will gladly send a trial sample to those who ask for it.



The prize of \$500.00, offered by the Eastman Kodak Co. for the best work of a professional photographer, was awarded to Mr. S. H. Lifshy, of Brooklyn. We are advised by Taylor-Hobson, Ltd., of New York, that the negative of the prize print was made with their Cooke Portrait lens, Series VI, of 13-in. focus.



THE PRIZE-WINNING PRINT IN THE COMPETITION FOR WOMEN
PHOTOGRAPHERS, CONTRIBUTED BY

Agostine Strickland, New York

The softness and charm of the original print (on platinum paper, 7x9½,
the fleshing and background being enlivened by a suggestion of color) are
unfortunately lost in this reproduction.—Editor

Report on the Competition for Women Photographers

Some months ago, I announced in these pages a Competition for Women Photographers. It was to be simply a friendly affair, with a single award of ten dollars for "the best print," to give zest to the competition. I really wanted to let the readers of *THE PHOTO-MINIATURE* see what the women workers are doing in photography, and to show my personal interest in their work. But my announcement evidently failed to reach those for whom it was intended, as it brought few responses. Thereupon, I wrote to Miss Mary Carnell, of Philadelphia, a prominent worker in the Federation of Women Photographers, who very kindly furnished a list of about 150 members of the Federation. To these I wrote, outlining the Competition and its purpose.

This brought me one hundred and fourteen prints and a bundle of enthusiastic letters. I wish it were possible to publish the whole collection—prints and letters—they are so full of human interest. But this I cannot do, despite my pleasure in them. It is plain, however, that the women workers are a new force in photography, and will do great things in portraiture, especially when they realize their freedom and express themselves, instead of following, more or less awkwardly, the conventional methods established by the men who have so far dominated professional portraiture. In these prints, among which many notable women photographers are not represented, there is a keener appreciation of the human side of the subject, a more noticeable refinement of ideas, and a more subtle expression of the personality of the worker, than one is apt to find in a collection of portraits made by men. I am glad to see this new note. It means an advance toward better things.

So much for my first thought in looking over the prints and letters sent me in this friendly competition. My second thought was that there would be a lot of difficulty in making the award. There were so many prints which appealed to me for one reason or another. In the end, however, I reached the conclusion that the three prints contributed by Miss Agostine Strickland, of New York, showed the most masterly handling of the most perplexing problem confronting the portraitist—the portrayal of the indescribable charm of American womanhood. The award, therefore, went to Miss Strickland, with a word of appreciation of her skill. An extract from Miss Strickland's letter, accompanying the prints, will give the reader a glimpse of the artist's viewpoint. I quote:

"My sympathy is all with the photographer. The wear and tear on one's disposition means annihilation to many cherished ideals. After all, dealing with the unknown personality is treading on dangerous ground; so, beware what you call forth!

"The phases one must necessarily live through, in order to understand one's limitations, are many. Out of chaos, therefore, select the thing you feel you can do best, and make that your special achievement.

"Full-length figures have a great fascination. Every expression of the body is wonderful. Women, some women, remind me of flowers swaying in the breeze; but, alas, the swaying ones are feeble and delicate, and prefer to sit down; while the full-blown rose—the cabbage rose—delights to stand with her massive outline casting its massive shadow sometimes before, sometimes behind———however———

"Frankly, I enjoy the battle of the work. The quiet laugh in the darkroom has its compensations. And my motto is: Be kind to (your own) dreams."

From the prints contributed, some for competition and others for good will, I have selected twenty-two for reproduction, as showing something of the work of women in photography, today. Among the many which I cannot reproduce, the majority are well worthy of honor, and my warm thanks are extended to every woman who sent her work for my pleasure. I am con-

fident that the readers of THE PHOTO-MINIATURE will share the delight I have in the results of the Competition, and gain from it new help and inspiration in their work,

In the following paragraph, I announce a new Competition for Pictures of Children, with the same distressing feature of the single award of Ten Dollars for "the best print." I hope that the women-workers will take a special interest in this new Competition, and that some one will send me a picture of a child, so clever in its portrayal of childhood and so altogether charming, that the making of the award will be a simple matter, instead of a perplexity.

Away back in 1900, with a host of helpers, I published in THE PHOTO-MINIATURE series a little illustrated handbook dealing with "The Photographing of Children." Strangely enough, it was the first and only book on that most fascinating of subjects. So great was its popularity that edition after edition was called for, and it made its way into almost every civilized country over the face of the globe. But I thought that it should be done all over again, in better fashion and more fully illustrated, according to the methods of child portraiture in vogue today. So that first book was allowed to go out of print, and now I am ready to tackle the making of the new book. Anxious that the illustrations shall be all that they should be, I am looking for the invaluable help of the women workers in this part of the work. I therefore announce a Competition for Pictures of Children exclusively, open to women only, amateurs or professionals, with an award of Ten Dollars for the best print sent in before the end of February. Prints will be returned if the necessary postage is enclosed when they are sent, but I ask the privilege of reproducing such as seem to be desirable for use in the issue of THE PHOTO-MINIATURE now in preparation, dealing with the possibilities and methods of photographing children. Prints sent for this purpose should be addressed to the Editor of THE PHOTO-MINIATURE, 122 East 25th Street, New York.



CONTRIBUTED TO THE COMPETITION FOR WOMEN
PHOTOGRAPHERS BY

Miss Reineke, Kansas City, Mo.



CONTRIBUTED TO THE COMPETITION FOR WOMEN
PHOTOGRAPHERS BY

Gertrude Belle-Oudry, Berkeley, Cal.



CONTRIBUTED TO THE COMPETITION FOR WOMEN
PHOTOGRAPHERS BY

Clarissa Hovey, Boston



CONTRIBUTED—NOT FOR COMPETITION, BUT FOR
GOOD WILL—BY

Belle Johnson, Monroe City, Mo.



CONTRIBUTED TO THE COMPETITION FOR WOMEN
PHOTOGRAPHERS BY

Agostine Strickland, New York



CONTRIBUTED TO THE COMPETITION FOR WOMEN
PHOTOGRAPHERS BY

Agostine Strickland, New York



CONTRIBUTED TO THE COMPETITION FOR WOMEN
PHOTOGRAPHERS BY

Ethel le Standiford, Louisville



CONTRIBUTED TO THE COMPETITION FOR WOMEN
PHOTOGRAPHERS BY

Jessie Tarbox Beals, New York



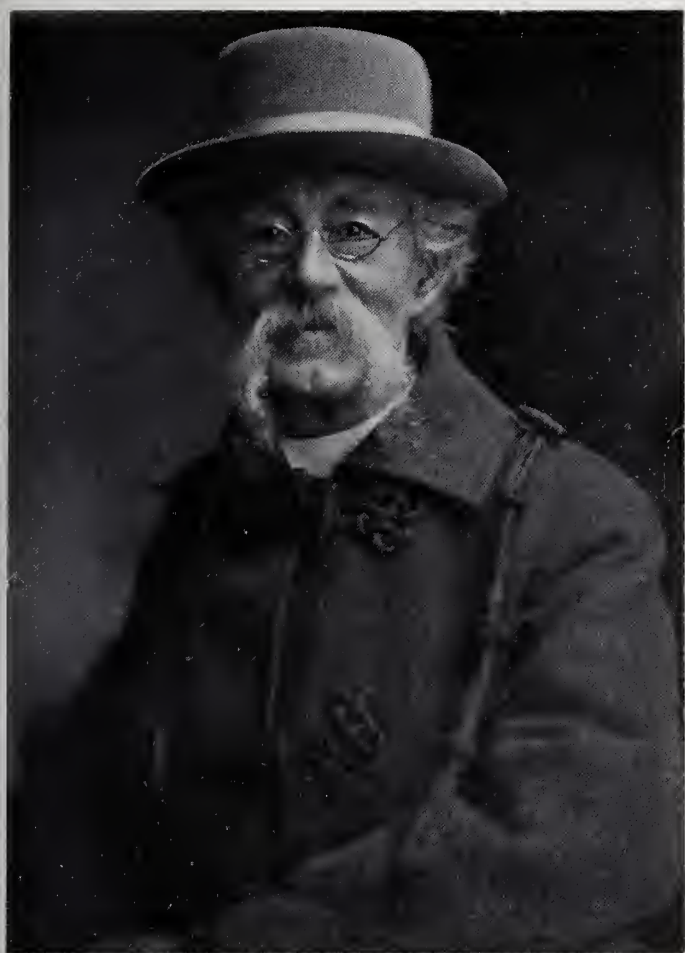
CONTRIBUTED TO THE COMPETITION FOR WOMEN
PHOTOGRAPHERS BY

Mabel Cox Surdam, Binghamton, N. Y.



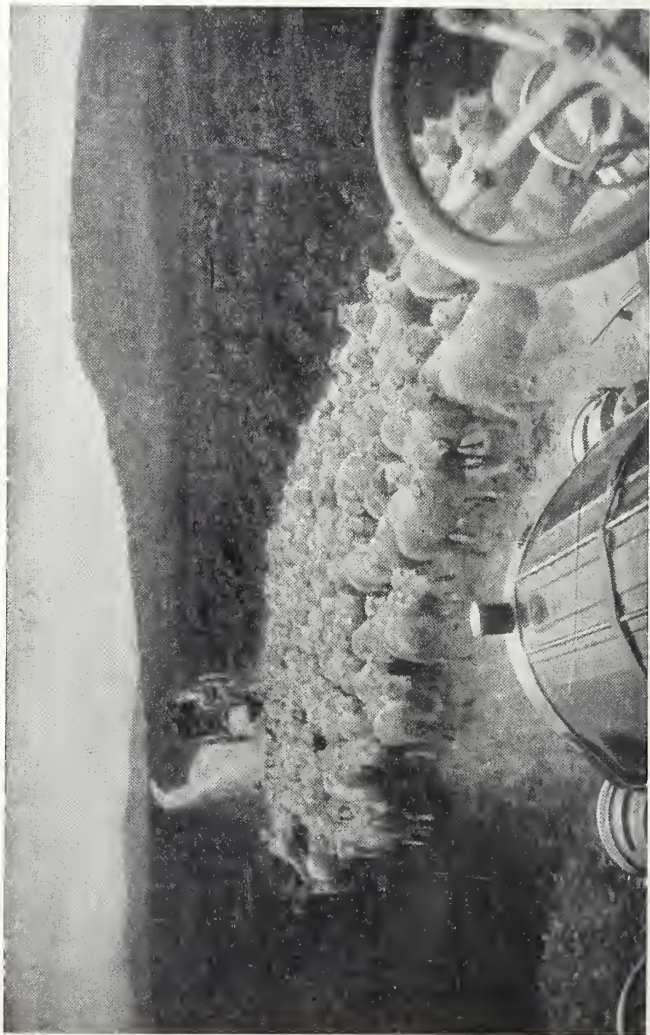
CONTRIBUTED TO THE COMPETITION FOR WOMEN
PHOTOGRAPHERS BY

W. E. Tate, Pontiac, Ill.



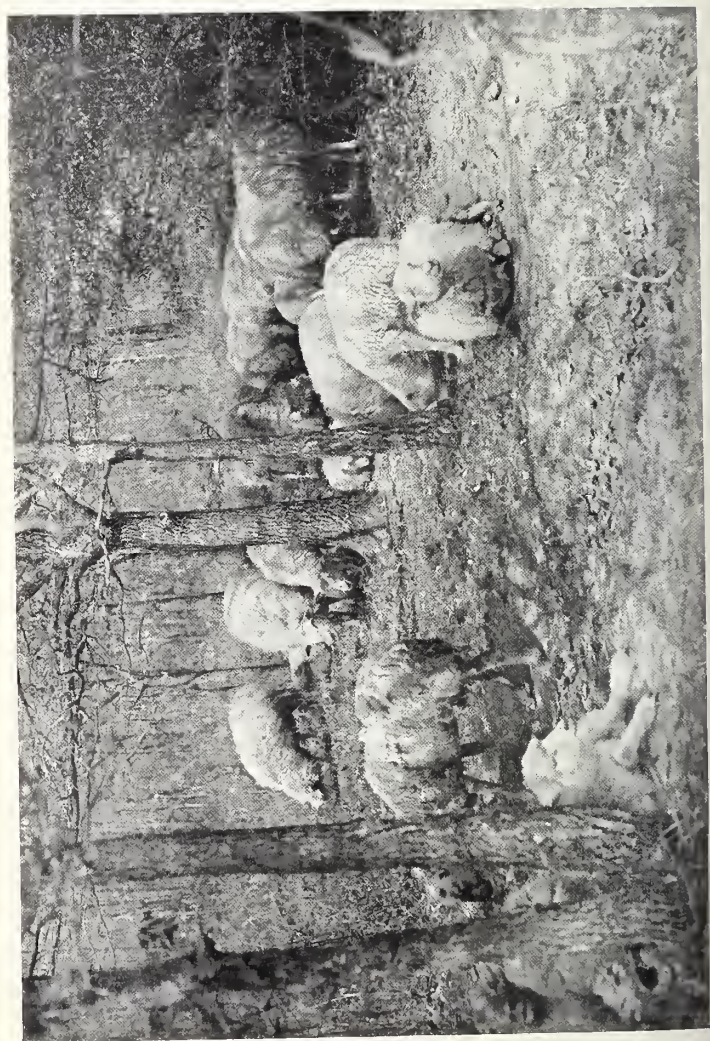
CONTRIBUTED TO THE COMPETITION FOR WOMEN
PHOTOGRAPHERS BY

Mary Carnell, Philadelphia



CONTRIBUTED—NOT FOR COMPETITION BUT FOR GOOD WILL—BY

Florence Maynard, West Philadelphia, Pa.



Pastoral: By E. J. Davison, Kansas City, Mo.
Exhibited at the Eighth American Salon

The Photo-Miniature

A Magazine of Photographic Information

EDITED BY JOHN A. TENNANT

Volume X

FEBRUARY, 1912

Number 119

The Optical Lantern

Photography opens out so many new worlds to its followers that we cannot wonder if some who fall under its magic spell are bewildered by the variety of its pleasures before they arrive at a just appreciation of any one of them. It is the peculiar mission of THE PHOTO-MINIATURE to set against this distraction and satiety that keener interest which comes from the quiet consideration of one thing at a time. Oftentimes an unknown road, uninteresting because unknown, will be gladly adventured with some one to show the way, or enliven the journey with a tale of pleasures at its end. Thus many have taken up photography with a new zest since we published in this series the little books which tell about picture-making with the lensless pinhole, the remarkable possibilities of telephotography, and the fascination of photography outdoors at night. Others again have renewed their interest by following special lines of work exploited in these pages, such as the uses of photography in decoration, in the illustration of advertisements, and so on—lines not strictly photographic in themselves, but providing new outlets for the work of the camera and a new direction for one's activities.

It is to this latter class that the subject of this monograph belongs. Pure photography owes nothing to the optical lantern. On the other hand, although antedating Daguerre's discoveries by more than two centuries, the lantern owes its present usefulness and world-wide popularity most largely to photography. For, though the optical lantern is broadly described as an instrument designed for the projection of any and every sort of a picture or image of an object upon some kind of screen, and so is used to project upon the screen magnified images of actual objects from the objects themselves rather than from pictures of them, as in vertical, polariscopic, and spectroscopic projection, yet its largest use is for the projection in an enlarged form of the little picture images which we make in the camera. Generally, the camera pictures projected by the optical lantern are prints on glass, *i. e.*, lantern-slides or transparencies; but latterly we have lanterns which will project magnified images of prints on paper, whether these are made directly from photographic negatives, or produced by mechanical printing methods, or drawn by hand. This last stage in the evolution of the optical lantern—opaque projection—has enormously widened its usefulness. In the use of the optical lantern, then, we have a byway offering wonderful possibilities of pleasure and profit to all who photograph or enjoy pictures, so that the subject falls naturally within the scope of THE PHOTO-MINIATURE as a magazine of photographic information. In the following pages, it is presumed that the reader is wholly ignorant concerning the lantern, its possibilities and use. We will, therefore, begin at the beginning and deal with the subject in the simplest way possible, the writer's aim being to tell the reader what he himself wanted to know when he first took up the use of the lantern for pleasure and profit.

Prints versus Lantern Pictures	When we make a print from a negative, we obtain a record which, however interesting or useful, can be viewed only by one or two persons at a time. This
---	---

applies with equal force to the showing of book illustrations, picture postcards and every sort of pictorial or graphic reproduction. Such records have the further

disadvantage of presenting many subjects on so small a scale, compared with the original, that one's pleasure in viewing them quickly evaporates. It is, in fact, somewhat tiresome to look through a collection of prints of small size, such as make up the average collection accumulated by photographers. Those who specialize in the photographing of small objects in their natural scale, for educational or scientific or industrial purposes, can best appreciate this difficulty, as well as the great importance of size in the proper presentation of many subjects. With the optical lantern at hand, these difficulties disappear, and we can show our prints without discomfort or inconvenience to one or hundreds of persons at a time, in any desired scale of enlargement, temporarily, on the lantern screen for entertainment or a more serious purpose, or we can get permanent records of any desired size in the form of enlarged prints on paper or glass with equal facility and convenience.

A Special Advantage It has been well said that the optical lantern offers us the best of all ways of showing or viewing photographs and illustrations for any purpose. This opinion is based on the fact that the lantern-slide, as a transparent print on glass, yields the best possible reproduction obtainable from the photographic negative. Thus, in the lantern slide we have a much more extended range of tone differences or gradations from light to dark, and a finer definition of details, than can be had in any print on paper. Further, in making a slide or transparency from a negative, we can correct or change the picture image in any feature where this is desired, by emphasizing or subordinating at this or that part, by strengthening or softening or coloring the picture when this will enhance its value. Apart from this advantage, optical projection gives us the subject under the most favorable conditions of illumination and isolation. We can view it from a comfortable seat, with complete freedom from the weariness inevitable in the personal examination of small prints. Furthermore, as many amateurs have discovered, the viewing of one's pictures on an enlarged scale on the lantern screen brings out technical and pictorial possibilities not seen in the small print.

**For Ama-
teurs and
Professionals**

These points in favor of the use of the lantern as an alternative to the print collection are not yet sufficiently appreciated by either amateur or professional photographers. Certain it is that the amateur who has not seen his pictures thrown upon the lantern screen has missed the keenest enjoyment to be had from his work with the camera, as well as the means of making enlargements from selected negatives, which would give him a great deal more satisfaction than can be had from the small prints. It is equally certain that the professional worker who overlooks the lantern and its uses loses thereby an unfailing means of helping himself in a business way. For example: I recall the case of a prominent New York photographer who built up an enviable volume of business in enlarged portraits by the simple device of showing his patrons enlarged portraits of themselves at the end of the sitting. This was done by equipping a passage opening from the studio with a lantern and screen always ready for use. A selected negative was developed by an assistant during the sitting and made into a transparency for projection. At the right moment, as the sitter was about to leave, the door of the passage was opened and the patron pleasantly surprised by the sight of an enlarged portrait of himself or herself upon the lantern screen. That this device often resulted in orders for enlarged portraits was only natural, and the lantern served the double purpose of securing the order and making the enlargement itself.

**Simplicity of
the Lantern**

A last word in favor of a more general appreciation of the lantern may be permitted in these introductory paragraphs. There are absolutely no difficulties or complications about the lantern and its use, except such as we may introduce in striving to do something out of the ordinary. For a few dollars we can obtain a lantern which will give us all the advantages mentioned, and its manipulation may be so simple that a child can manage it. Once the instrument is set up for use, the mere turning on of the light connected with the lantern gives us its complete operation, apart from the neces-



By L. J. Buckley, Binghamton, N. Y.

As an example of the remarkable capacity of photography to reproduce the illusion of life; to present the appearance of reality; this example is, to my mind, a great credit to the photographer.



By L. J. Buckley, Binghamton, N. Y.

A charming picture of a child, but the reproduction fails to give the effects
seen in the large sepia print sent me

sary changing of the subjects to be projected; and there are lanterns which, where this is necessary or desirable, will automatically change the slides at convenient intervals, so that the operator can give his undivided attention to the pictures upon the screen.

The Lantern Described As far as we are concerned in this monograph, the lantern may be described as an instrument for projecting upon an opaque screen an enlarged reproduction of any sort of picture image. Most boys and girls are familiar with it in its elementary form as a "magic lantern." Generally it is called a stereopticon, but some manufacturers give their makes a trade name, such as the Sciopticon, Heli-opticon, Balopticon and Radiopticon. It is just the reverse of the camera, which gives us upon the plate or film a reduced picture image of the subject before the lens, whereas the optical lantern gives us on the screen an enlarged image of the subject behind the lens. The projection of the picture image in both cases is based upon the optical principle that, with a fixed object and a fixed screen, there are two positions in which the lens will produce an image, the focal distances being the same in each case, but reversed. If the lens is near the object, we get an enlarged image; if it is nearer the screen, we get a reduced image. We have the first case when the lens is used in a lantern; the second case when the same lens is used in a camera. So, with the optical lantern, when its parts are properly connected and adjusted, the light, passing through a set of condensing lenses, which serve to direct the greatest amount of rays possible through the transparent glass slide bearing the image to be projected, and to focus them in the projection lens or objective, reproduces the picture image upon the screen, enlarged many diameters, yet retaining all the detail and gradations of tone in the original. The application of this principle is somewhat modified in opaque projection, but the result is the same in all kinds of projection.

Its Essential Parts The lantern is not a complicated instrument. In its simple essentials it consists of three integral parts: the light, the condenser, and the objective or projecting lens.

To these we may add a fourth—the screen on which the picture is projected. These parts are connected as follows, beginning at the rear of the instrument:

Lamphouse First, we have the lamphouse or small chamber, usually made of metal, and arranged for holding the light, which may be oil, ordinary house illuminating or acetylene gas, electric light, incandescent or arc in various forms, the oxy-hydrogen or calcium light, some form of denatured alcohol, vaporized petroleum sprayed upon a Welsbach mantle, and other forms. Improvements in lantern-lighting systems are made so frequently that it is impossible to present a list of them which will be accurate and complete for any appreciable time.

Condensers In front of the lamphouse, or body of the lantern, a round hole is cut, forward of which the condensers are placed. The function of the condensers is to gather as large a proportion as possible of the light rays proceeding from the illuminant, and concentrate or condense them to a point at the objective after passing through the lantern-slide. As it is impossible or impracticable to do this with a single condensing lens of short enough focus and large enough diameter, two lenses, and sometimes three, are used to form the condensers employed in lanterns for projection work.

Different Forms In its usual form, the condenser system is composed of two plano-convex lenses, mounted together so that their convex sides face each other. In the triple form of condenser, the third lens is usually a meniscus, of smaller diameter than the other pair, the concave side of this third lens being placed next to the light, and closer to it than is admissible with the regular plano-convex pair. The practical result of the addition of the third lens, and the big advantage of the triple condenser, is that a more brilliant light is obtained by its use. Special forms of triple condensers have been introduced by Gray, Bausch & Lomb and others, which deserve the consideration of those interested in projection work, but need not be enlarged upon here, since the reader can readily obtain information from the manufacturers.

Size of Condensers The condensers should always be large enough to cover the diagonal of the picture image on the lantern-slide.

As the opening of the lantern-slide mask is rarely more than three inches in diameter, and most lantern-slides do not exceed three and three-fourths inches diagonally, four- or four-and-one-half-inch condensers will generally suffice for all ordinary requirements. The following table gives the diameter in inches for all condensers of from four to fourteen inches diameter, with their foci, also in inches. No lanternist will ever require the largest sizes, but the figures are given as an item of information which may be useful.

Diameter		Focus
4 inches		5 1/2 to 6 1/2 inches
4 1/8 "		5 1/2 to 6 1/2 "
4 1/4 "		5 1/2 to 6 1/2 "
4 1/2 "		5 1/2 to 6 1/2 "
5 "		6 "
5 1/2 "		8 "
6 "		10 "
6 1/2 "		10 "
7 "		12 "
8 "		12 "
9 "		14 "
10 "		15 "
12 "		18 "
14 "		21 "

Breakage A difficulty sometimes encountered in the use of condensers is the liability of breakage, due to the unequal expansion and contraction of the lenses, caused by the heat to which they are necessarily subjected. This can be overcome by the use of a water-cooling cell placed between the plano-convex lenses, although ventilated condenser mounts offsetting this difficulty are now obtainable.

Bellows Immediately forward of the condensers is a square opening which holds the slide-carrier. This square is of metal and is about 4 1/4 x 4 1/2 inches, sometimes a little larger, sometimes less. It is placed as close to the condensers as possible, so that the maximum amount of light is utilized,

and the picture image is brilliantly and evenly illuminated. Attached to this frame is a bellows, usually square, and of sufficient length to permit the focusing of the lens in use. The interior of the lantern body is painted black, so as to obviate any troublesome reflection of light which would weaken the brilliancy of the picture image on the screen.

Projection Lenses

At the front of the bellows a rigid frame is attached, to carry the objective or projection lens. With regard to the lens used for lantern projection, while the efficiency of the outfit is in a large measure determined by the quality of the lens employed, yet, for all average requirements, this need not be an expensive item. Three varieties are commonly advised: a double achromatic lens, corrected for spherical and chromatic aberrations, costing from \$7 to \$35, according to focal length; a higher-grade lens, fitted with diaphragms which permit of stopping down for critical definition; and anastigmats, fully corrected to give a perfectly flat field with great illumination and perfect definition, these last being used only in the highest grades of lantern equipments. Lantern lenses are of various focal lengths, this detail determining the distance required between the lantern and the screen for a picture image of any given size. For example: a six-inch lens at a distance of twenty feet from the screen will give a disc ten feet in diameter. Thus, by varying the distance between the lantern and screen, we can obtain images of different sizes with a lens of given focal length; or, by using lenses of different focal lengths, we can obtain different-sized images without changing the position of the lantern. A table covering the application of this point is given on a later page.

Various Adjustments

Attached to the body of the lantern there are two rods, one at each side, fitted with set screws, to hold the front board and lens rigid when the bellows has been drawn out to sufficient length, and there are rods fitted with set screws to hold the front board and objective at any desired height. The newer lanterns have attachments on the lower front corners of the lamphouse, which can be changed to any angle, insuring a solid support,

no matter how the instrument is tilted. The objective is fitted with a focusing attachment, which permits of fine regulation after the bellows has been extended to the proper length. In the writer's lantern, this attachment permits a change of one inch, which is probably approximately the same in all similar lenses.

**Single
Lantern**

As far as we are here concerned, we may group optical lanterns in two or three classes: First, we have the single lantern, spoken of as a stereopticon, Balopticon, etc. This meets all the requirements for use in the home, studio, small hall or lecture-room, and may be purchased at from \$25 to \$75. Such a lantern may be used for the making of photographic enlargements; or we can buy an instrument designed primarily for enlarging purposes, with an attachment converting it into a lantern for the projection of lantern-slides.

**Dissolving
Lanterns**

Second, we have the double lantern, or dissolving stereopticon, consisting of two single lanterns with powerful light systems, placed one above the other or, more rarely, side by side. The purpose of combining two lanterns, apart from the greater convenience of handling the slides in quick succession, is to avoid the eye strain and disagreeable effects consequent upon the alternate darkening and illuminating of the screen, incidental to the changing of the slides when a single instrument is employed, by causing one view to blend or dissolve into the succeeding view. This is accomplished by means of a dissolving device, which usually consists of an iris diaphragm mounted in each of the projecting lenses, the two being connected by an operating rod. By moving this rod, one diaphragm is opened and the other closed at exactly the same rate, so that each view on the screen gradually fades or blends into the succeeding view without break or abrupt transition. Apart from this convenience, with appropriate subjects, the dissolving device offers a means for the obtaining of beautiful scenic effects not possible with the single lantern. In many double lanterns, the single lanterns making the combination can be used separately, when this is desired.

Both single and double lanterns can be obtained fitted with attachments for the projection of postcards, prints, etc., the Bausch & Lomb Balopticons being notable for this feature. But, where it is not intended to use the lantern either for the projection of lantern-slides or making enlargements, convenience and economy suggest the purchase of an instrument specially designed for opaque projection, such as the Radiopticon (which can also be had in "combination" forms for slide and opaque projection) or the Opaque Balopticon.

With this knowledge of the lantern,

Illuminants we can now consider the choice of the light, or illuminant. As I have already pointed out, those most generally used are oil, denatured alcohol, gas, electric light, either arc or incandescent, and oxy-hydrogen. All these illuminants are available in many varying forms. One is not necessarily better than the other—each being satisfactory within its limits and for definite requirements. The choice among them usually rests upon two details: convenience of supply and the size of the picture desired on the screen. With regard to the first, choice will depend upon whether the lanternist can secure the electrical facilities needed for the use of the arc or incandescent electric light, whether house or acetylene gas is available, or whether he must necessarily rely upon one or other of the forms of oil or alcohol lights, or use oxy-hydrogen. Regarding the second point, the catalogue of a reliable lantern firm tells us that the 90° arc light will illuminate a lantern-slide magnified up to thirty diameters; the oxy-hydrogen light, to a diameter of twenty-five feet; the various forms of incandescent electric light, to a diameter of ten feet; while the different varieties of acetylene gas, vaporized oil and alcohol lights will illuminate a disc of from six to eight feet in diameter. A Welsbach mantle used with ordinary illuminating gas and a three-wick oil lamp are about equal in illuminating power for a disc not exceeding six feet in diameter. These figures, however, are only roughly approximate. Special claims are made as to the illuminating capacity of particular lighting system, such as the Bright White Light (Williams, Brown & Earle,



By L. J. Buckley, Binghamton, N. Y.

In arrangement, lighting and the rendering of dress textures this is one of the best examples of bride portraiture I have seen in a long time



By L. J. Buckley, Binghamton, N. Y.

In this simple portrait of a girl the softness of the modeling and the clever treatment of the hair deserve notice

Philadelphia); the White Light (Underwood & Underwood, New York); the Schwan Light (Chas. Beseler Co., New York); the Mita Reform Light (Herbert & Huesgen, New York); the Ingento Gasolene Vapor Lamp and Ingento Nernst Lamp (Burke & James, Chicago); for information about which the reader is referred to these firms.

For public-lecture use, or where a brilliantly lighted disc more than ten feet in diameter is needed, modern practice seems to favor the electric arc as the most powerful and most convenient of lantern illuminants. But most lanternists will agree that the oxy-hydrogen light gives the steadiest and most brilliant illumination for the average lantern-slide. As a matter of fact, it would be very difficult to choose between them on the score of actual efficiency.

Oxy-hydrogen or Limelight The oxy-hydrogen light (the familiar calcium or limelight of the theater) is the brilliant glow given by a pencil of lime when heated to incandescence by a very hot flame. The necessary heat is obtained by a mixture of oxygen and hydrogen. This mixed gas is directed in a tiny jet of flame against the pencil of lime, its intense heat making the lime glow with great brilliance.

For this light two heavy iron cylinders are required, one holding oxygen, the other containing hydrogen. As a matter of convenience, the oxygen cylinder is painted red and the hydrogen cylinder is painted black. These cylinders of gas, ready for use, are furnished to order by firms located in all large cities, who make a business of supplying these gases for lanternists and theaters. As set up for use with the lantern, a rubber tube is attached to the top of each cylinder, in the form of a fork. These tubes are connected with the lamp fixture, consisting of a mixing chamber with a revolving pin or screw holding the lime pencil and the jet, through which the mixed gas impinges upon the lime, heating it to incandescence, and creating a steady, clear white light. In the double lantern, a dissolving key is provided by which the flame is cut off from one pencil and turned on to the other at the same time. As the light ceases the picture disappears from the screen. The slide

is changed in time for the increasing light in the other lantern to bring it out in all its beauty, which gives a more pleasing effect than is obtainable in any other way.

Some lanternists hesitate to use the oxy-hydrogen light because of the fear of an explosion. Such an accident is possible and a few have actually occurred, but the danger is so small as to be practically negligible if the operator uses due caution, and is careful to turn on the hydrogen gas first when preparing to give his exhibition. If the oxygen is turned on first, an explosion is possible, unless the cylinder is provided with a safety attachment.

The Electric Arc Lamp

Turning now to the electric arc light for projection, two types of arc lamps are offered: one in which the carbons meet at a right angle, while in the other the carbons are either perpendicular or inclined. The arc is formed between the two carbons exactly as in the familiar street lamp. There seems to be little difference between the two types, as far as character and quality of light are concerned. Modern lantern construction seems to favor the right-angle, or 90° form.

Hand and Automatic Feed

Since the carbons grow shorter as they burn, the lamps are provided with a device for keeping the points together. In nearly all lamps, this adjustment or "feeding" of the carbons must be done by hand; but there are lamps which "feed" automatically, as in street lamps. An automatic-feed lamp is said to give a steadier light, and it is certainly more convenient than the hand-feed, but there is little difference between them in results in the hands of a capable operator. Some operators, however, prefer the hand-feed, since it permits of certain manipulations not possible with the automatic-feed. It must be remembered that no electric current is ever steady, and that the arc light will vary with the current. This unsteadiness is more marked with the alternating than with the direct current, but both require an alert operator, if the light is to be kept up to its full candle-power. Very much depends, in the use of electric current, upon the intelligence of the operator at the lantern.

Much discussion has centered about
Carbons the kind of carbons used for projection purposes, and the question has not yet reached a settlement satisfactory to all operators. One will declare that both carbons should be "hard," while another asserts that one should be "soft" cored and the other "hard." Some say that a direct current will give a clearer, steadier light if both carbons are hard. On the other hand, an alternating current seems to require that one carbon shall be "soft" cored. In my own experience, extending over many years, I have found one soft carbon necessary to obtain the best results, whether the current be direct or alternating. It has also been found best to put the soft carbon at the top with the direct current, and at the bottom with the alternating current. No attempt is made to offer a scientific explanation of this, which is recorded simply as personal experience. Perhaps another worker would obtain equally good results in some other way. [The reader will find much interesting information on this and other points in the use of the electric arc in the series of papers on "The Motion Picture" and "The Dissolving Stereopticon," by T. Stanley Curtis, published in "American Photography," Boston, Volumes IV and V, 1910-1911.—EDITOR.]

An arc lamp should never be used
Rheostat without a rheostat. This is simply a controller, consisting of a length of insulated wire so wound that the current supplied by the lighting circuit must flow through it, the excess voltage not required to maintain the arc being held back or absorbed. This resistance helps to control the current and steadies the light. Usually a method is provided by which a portion of the resistance can be cut out, increasing the current and therefore the light. As it is impossible to control the light without a rheostat, this should be provided as a necessary part of every electric-arc equipment.

[Since the above paragraph was written
Editor's Note ten concerning the necessity of a rheostat, a new device has been introduced, named a "transformer," which, it is claimed, eliminates

the necessity of the rheostat for the control of alternating current arcs in projection work, with other important advantages in operation. By corresponding with the manufacturers of this "transformer," Houghton & Curtis, Waltham, Mass., the reader may learn of the peculiar advantages and uses of this invention at greater length than is permissible here.—EDITOR.]

**Incandescent
Light**

Next to the electric arc is one or other of the special forms of the incandescent electric light. One of the best of these is the Schwan Light, a development of the Nernst system. This lamp may be attached to any Edison socket on any current, and requires no special wiring. It comes in two forms: a single-glower lamp, with 250 c.p., and a four-glower lamp, with 1,000 c.p. This light is at its best for pictures not exceeding ten feet in diameter, the most favorable illumination being obtained by the use of a triple condenser. A similar lamp is the Ingento Nernst Lamp. Both lamps offer an ideal light for projection or enlarging purposes, where a very large screen picture is not desired; and this system is perhaps the most convenient available where the ordinary electric light current is in use. Ordinary globular lamps of the tungsten type, such as the "Mazda" lamps, giving a light of from 100 to 200 c.p., can be used successfully for the projection of lantern-slides, where a small screen picture is desirable.

**Welsbach
Gas, Oil,
Alcohol**

After the incandescent electric light, we have the Welsbach mantle, used with ordinary illuminating gas, or petroleum or denatured alcohol sprayed upon it. Of these, the Bright White Light is the most efficient, giving about 600 c.p. This lamp burns kerosene, the oil being vaporized under pressure and sprayed on the mantle. Closely following in practical efficiency, we have the White Light, burning vaporized denatured alcohol. The Mita Light is of this type. The Welsbach gas light, which is available by means of a simple stand to hold the gas mantle and a supply of tubing to connect the mantle with any house burner, gives a light of about 100 c.p. For use in the home with a short throw, this light is altogether satisfactory.

Acetylene gas gives a clear, brilliant light for projection purposes, of about 250 c.p., but its use necessitates the employment of a generator for the production of the gas, and the equipment is somewhat bulky and requires attention and care.

Finally, we have the plain oil lamp, which can be used without any other equipment wherever kerosene oil can be obtained. This form of illuminant does not, of course, give so efficient or brilliant a light as some of the others described; but it is by no means to be despised, opening up remarkable possibilities in capable hands, and in localities where other kinds of lamps are not available. A simple lamp with two wide wicks, set at an angle to the condensers so as to present as broad a light surface as possible, is usually advised.

Having learned about the various types of lanterns, with brief descriptions of the lighting apparatus, the next important matter is the setting up and operation of each variety.

Certain inflexible optical principles govern this, and unless these are understood the reason for a poor light will not be known. Indeed, putting the apparatus together and regulating the light constitute the principal features in the success of an exhibition, whether professional or amateur. And the amateur can be quite as successful as the professional if he observes these fixed principles with the same care.

Sometimes, in preparing to give an exhibition, it becomes necessary to determine the focus of the lens required to make a picture which will cover the screen at a given distance. This formula will be found accurate :

S—Size of opening in slide, in inches.

D—Diameter of disk on screen, in feet.

L—Distance from objective to screen, in feet.

F—Equivalent focal length of projection objective.

This is the formula which will convey the desired information :

$$\text{Then } L = \frac{D \times F}{S} \quad D = \frac{L \times S}{F} \quad F = \frac{L \times S}{D}$$

For example, if it is desired to work in a hall at fifty feet from the screen, with an image ten feet square, using a slide the opening in which is three inches, what must be the focal length of the lens?

It works out thus:

$$F = \frac{L \times S}{D} \quad L = 50 \quad S = 3 \quad D = 10$$

Therefore, $\frac{50 \times 3}{10} = 15$ inches, the focal length of the lens required.

This formula can be employed in determining the distance from the screen required by a lens of any focus, provided the focus is known, and it can be used for longer or shorter distances, as shown above.

In almost all lantern manuals, tables are given for this purpose, but with the formula I have extended above, the reader is independent of such helps, which are rarely at hand when needed. If the formula is copied onto a small piece of card, it can readily be carried as part of the lens equipment, ready for use when required.

A handy table is appended in which the formulas are worked out for lenses from five to fifteen inches focus and for all throws from ten to one hundred feet. The short throw of ten feet will be found useful for lanterns using weak lights, like kerosene, or low-power electric incandescent. If an exhibitor has a throw of more than one hundred feet, he can work out the focal length of the lens by means of the formula given. The writer found this table credited to the Bausch & Lomb Optical Co., and has used it in his own practice since. He has found it uniformly useful, and knows of nothing better for either amateur or professional use.

Table giving length of throw, equivalent focus of lens and diameter of disk on the screen for all distances from ten to one hundred feet and for all lenses from five to twenty inches focus:

	Distance from Objective to Screen, in Feet										
Focus of Lenses	Diameter of Image on Screen										
	10	20	30	40	50	60	70	80	90	100	
20-inch				6	$7\frac{1}{2}$	9	$10\frac{1}{2}$	12	$13\frac{1}{2}$	15	
18-inch				$6\frac{1}{2}$	8	10	$11\frac{1}{2}$	13	15	$16\frac{1}{2}$	
15-inch		4	6	8	10	12	14	16	18	20	
12-inch		5	7	10	12	15	17	20	22		
10-inch		6	9	12	15	18	21	24			
8-inch		7	11	15	$18\frac{1}{2}$	22					
$7\frac{1}{2}$ -inch	4	8	12	16	20	24					
7-inch	$4\frac{1}{2}$	$8\frac{1}{2}$	$12\frac{1}{2}$	17	21						
6-inch	5	10	15	20							
5-inch	6	12	18	24							

In short rooms, the full length of the bellows will be needed, and sometimes the lens must be racked out the full length, in addition. The reverse is true of long rooms, where the bellows must be made as short as possible, and the lens the same. A short-focus lens cannot be used in a long room because the magnification is too great, and the picture is likely to be too large for any screen the room could contain. Because of the variability of these conditions, it is necessary to have both long- and short-focus lenses. With only one, it would be impossible to set up in halls or rooms of different sizes.

Adjustment of Light The electric lamp, and all other illuminant lamps, must be adjusted with the arc, or the point of greatest illumination in other systems, central to the axis of both condensers and projection lens. If the arc is not central, the field will be unevenly illuminated. In securing uniformity of illumination, much depends upon the distance of the arc, or light source, from the condensers. If placed too close, a red shadow appears in the margin of the field. If the arc is too far away, a blue shadow appears, in both instances sometimes extending entirely around, while in others it appears on one side only, depending upon the way the lamp is swung. Adjustment must be continued until the field is clear. Nothing mars an exhibition more than to have these troublesome arcs appear in the margin

of the field. They degrade the high lights and give false tints to the pictures. With a little care, they can be eliminated.

There is one point at which the field is evenly illuminated. That is where the converging rays from the condenser cross in the projection lens. In other words, the light must be so adjusted with reference to the condenser as to bring the focus of the light, or the crossing of the rays, to a point on the axis of the projection lens. No formula can be given for finding this point. It must be obtained by experiment.

Position of Lamp and Lens This naturally suggests something else. The question is often asked: "What should be the relative position of lamp and lens?"

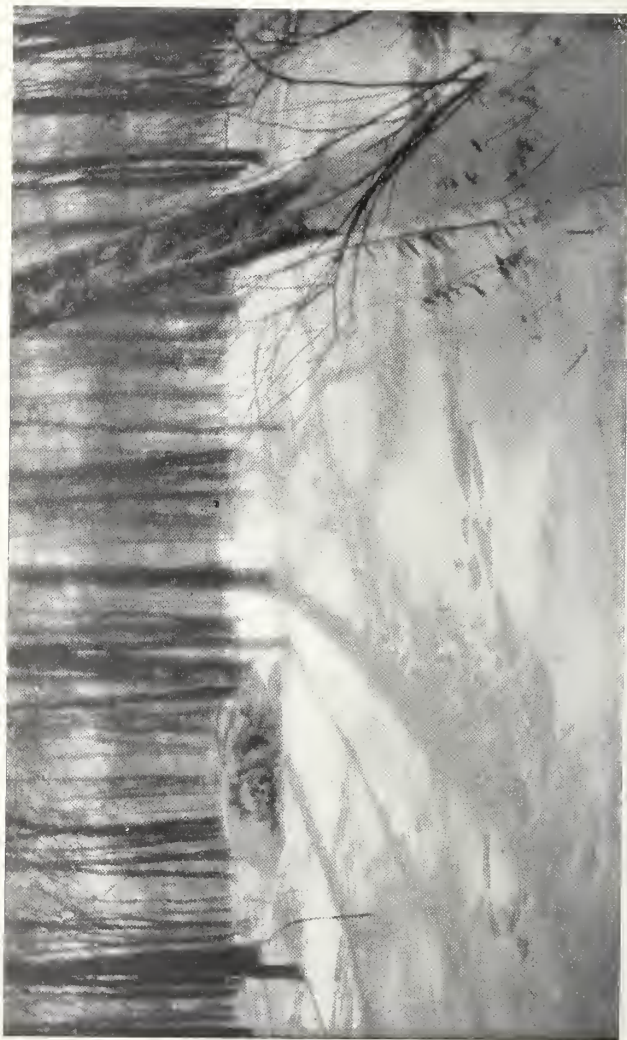
Inasmuch as this point is not constant for all lenses, or even for the same lens, it cannot be accurately answered. It will vary with every lens, and again it will vary with the same lens, because the position of the lens changes with relation to the image as the object changes with relation to the lens. Hence it becomes necessary to adjust the light for each separate distance and each different scale of enlargement. Again, no two lenses will be found exactly alike, even though they may be of the same focus. In operating, it will be necessary to change the adjustment every time the lantern is set up. Moving the lamp nearer the condensers, or farther away, as the case may be, will correct defective illumination. Sometimes it has to be swung slightly to the left or right, to accurately center the arc, or point of greatest illumination. This adjustment is not difficult, however, and no operator should have much difficulty in securing and maintaining throughout an exhibition perfectly even illumination, unless the electric current is very bad. Care in the little things makes the difference between success and failure, as it always does in photography.

Light and the Condensers The distance of the light from the condensers being governed by the distance of the lantern from the screen, it follows that it must be changed each time the lantern is set up. For this reason, it must be movable and can never be fixed. It requires but little regulation after



A Speed Trial: By Dr. M. M. Lesser, Jr., New York

Original print, $3\frac{1}{2} \times 5\frac{1}{2}$. Eastman film; Goerz Dagor lens at $f/6.8$; Multi-Speed Regular Shutter; exposure 1-2000th second. Tank development, 40 minutes, double-strength pyro. Speed of autos, 60 miles per hour; sun clear, day bright, 2 P.M. August.



Winter: By Oliver H. Bodine

An illustration of the diffused focus effect secured with the Bodine Pictorial Lens

the instrument is set up. This applies to all types of light alike, whether oil, gas, electricity or oxy-hydrogen. Means are provided in each lantern for the slight changes necessary.

In preparing an oil lamp for use, it is necessary to wipe the lamp carefully, fill it, trim the wicks, and see that the glass in front of the flame is clean. The concave reflector back of the lamp should be wiped clean, as well. These two latter operations are important and must be attended to, otherwise the light will not do its work well. It must be remembered that an oil light is weak, even at its best, and everything must be done to increase its efficiency. Or, in other words, it has to be "coddled," to get the most out of it.

The incandescent electric light is easily adjusted. It must be put on the base at the proper height so the center will be opposite the axis of the condensers. It can be adjusted only by moving it nearer or farther from the condensers. Lateral or perpendicular movement is generally impossible.

Managing an Arc Light In the electric arc, the carbons should be cut about five inches long, to burn an hour and a quarter to an hour and a half. If the full current is required to keep the light up to candle power, they will burn down much faster. With a moderate current, that length is sufficient.

Turn the feed wheel until the clamps are as far apart as possible, and fasten the carbons in evenly so they will be accurately centered. Turn the wheel the other way until the carbons almost touch. The ends should be sharpened or trimmed, otherwise they will have to be burned until they are pointed. If you are operating on an alternating current, put the carbon with the soft core pointing upward. Where the current is direct, two hard carbons can be used. They will crackle, but not severely. The noise of a light on an alternating current is worse than on a direct current, but, with care, it need not make sufficient disturbance to be an annoyance.

After the carbons are adjusted, the wires are to be attached, taking care that the current is carried through the rheostat. Arc lamps are arranged so that the light

can be adjusted laterally, or perpendicularly, by means of swivels. It can be regulated and changed after the current is turned on. Caution must be exercised in using this form of light, since great heat is generated, and severe burns, and possibly dangerous shocks, will follow careless handling.

The arc will make some noise. No means has ever been devised to prevent it, but a careful operator can reduce it by keeping the carbons the right distance apart. If the separation is too wide, the roar will be troublesome. If it is not wide enough, the light will be poor. There is, however, a medium distance at which the light is best and the noise is least. By keeping the points always the proper distance apart, the light will give little trouble.

An operator must be alert to change the slides, particularly if the lecturer is a rapid talker, and manipulate his light properly at the same time. Practice is required, but the obstacles are not insuperable. Almost any one can learn how to do it well and, once having learned the way, the use of the arc light will become as easy and successful as any other.

One thing more should be added about the arc light. The slides should be made denser than for a weaker light. Indeed, it is possible by increasing the current, through changing the cut-out on the rheostat to force sufficient light through an almost hopeless slide, to give a creditable picture on the screen. Thin slides will be disappointing. The arc light is so powerful that the half-tones may disappear.

If the arc light is used much, a proper cable should be procured to carry the current about the building. The writer uses about one hundred feet in his exhibitions. This is sufficient to convey the current in nearly all buildings. Sometimes it is necessary to attach the wire at the back of the meter. If the latter is not fused heavy enough to stand the current, it will be ruined if the full force required is run through it. Usually electric-light companies will permit this by paying a fixed sum for the evening. In halls and churches this is seldom more than one dollar. Sometimes they make no charge, but not all are so generous.

In setting up the oxy-hydrogen light, **Oxy-hydrogen** the same principles govern as in setting up the electric arc, so far as distance from the screen and centering the light is concerned. But, inasmuch as it is a different type of light, the procedure required for producing it is different. In place of wires and rheostats, there are tanks and tubes.

The attachments are all provided especially for these lights. The lime pencil must be inserted in the holder with some care, otherwise the light may be uneven, or one-sided. Usually the fingers which hold the lime are flexible, and can be adjusted to hold it firmly as wanted by slight bending one way or another.

See that the jet is the proper distance from the pencil so the flame will reach the lime at the correct intensity. Otherwise the light will be weak. This, too, must be determined by experiment.

Turn on the hydrogen gas first, that from the black cylinder, otherwise trouble may follow, and an explosion is possible.

The light needs but little attention excepting to see that the flow of gas is properly regulated so as to keep the lime evenly incandescent. Sometimes the lamp will hiss a little, but usually it burns steadily without noise. And the clear, steady illuminant enables the operator to show perfectly clear pictures, including all the artistic half-tones of the original. Most lanternists think that no light quite equals the oxy-hydrogen, yet they will agree that the electric arc, when properly connected and carefully operated, is so near that the choice is slight. The danger in the electric light lies in the possible mistakes of inexperienced or careless operators, or where the current is weak or uncertain. The oxy-hydrogen light is always under the control of the operator. The electric light is subject to conditions over which the operator has no control. Those differences are fundamental, and can be only partially modified or improved.

Special Of the special varieties of gas, alcohol
Lamps and oil lights offered little need be said.

The Bright White Light (Williams, Brown & Earle) must be set up and operated according to the rules formulated by the makers. The same ob-

servation holds good with reference to other makers' light systems. It is scarcely necessary, under such circumstances, to describe at length, or give in minute detail, the methods of operating these lights. They are good within their limitations, and the directions which go with them are prepared by those familiar with their operation under all circumstances. For these reasons, it seems unwise to enter into any lengthy directions for operation. They are not general, like electricity and oxygen. They are special and must be manipulated in a special way.

Ordinary illuminating gas must be used with a Welsbach mantle; the direct light is too weak to exhibit anything but the thinnest slides. Back of the mantle must be a reflector, preferably concave, or concentrating. This reflector must be kept bright, otherwise the strength of the light will be reduced. The manipulation of the light will be exactly the same as for a drop-light for the home. Where the most brilliancy possible is required, a fresh mantle and a clean reflector must be provided.

The light is not difficult to manage, and where the throw is short, as in the home, it gives good results. For large halls it is not satisfactory, and when used in such places it should be with the understanding that the large pictures will be weak, and sometimes the effect will not be pleasant.

Acetylene gas has become more and more popular of late. Formerly there was danger of explosions, but now the perfection of the apparatus by which the gas is generated has done away with all such possibilities, and explosions are impossible.

The burner is so arranged that three or four flames are centered in front of the reflector, one a little higher than the other and a bit in front. This gives the effect of one large flame. The reflector needs to be kept bright, otherwise the light is too weak to make good pictures. The light is inexpensive, costing only a few pennies for an evening, but it is clear, and for home or amateur use is, perhaps, as good as any offered. Its use in halls should be limited to short throws, otherwise the pictures will be disappointing. It requires a stronger light to properly illuminate the long throws.

These are the principal varieties of lights, with their installation and operation briefly described. Any amateur should be able from what is here said to use a lantern with either one of these illuminants. It is practical work with the lantern rather than any description which will make the amateur or professional expert. This little guide will help. The rest must come largely by experience with the lighting system and instrument chosen by the individual worker.

Practical Operation The actual operation of a lantern is a relatively simple matter. Most operators stand on the right looking toward the screen. If the dissolving apparatus is connected with the light, keys are provided by which one light is turned off and the other on at the same time.

Most double lanterns, at the present time, have the dissolving apparatus attached in two different ways. In one, metal disks are fastened to a metal arm which revolve so as to come in front of the lenses and cut off the light. Such a dissolver is usually operated by turning a small handle at the side of the lantern. The better way is by means of iris diaphragms in the lens tubes, separated by a small lever which projects outside.

Care must be exercised, in setting up a double lantern, to have the disks of light in exact register on the screen, otherwise unpleasant overlapping may follow as one picture dissolves into another.

When an operator and a lecturer work together for some time, no signal is needed. The operator will come to know when to change the slide. But a stranger will need a signal. It may be a flash lamp or a buzzer attached to the lantern where it can be seen or heard by the operator alone, and operated by a push-button connected with a small battery; or it may be a small clicker held in the lecturer's hand. The former is the better since it does not attract the attention of the audience. The latter is cheapest and quite as effective.

Before the lecturer begins, the operator should insert his slide carriers in their proper places, place slides in them, and see that they work easily and without catching.

Get the lantern focussed and all ready to begin, so that when the lights in the hall are turned out the first picture, or some preliminary scene provided for the purpose, will appear as soon as the room is dark.

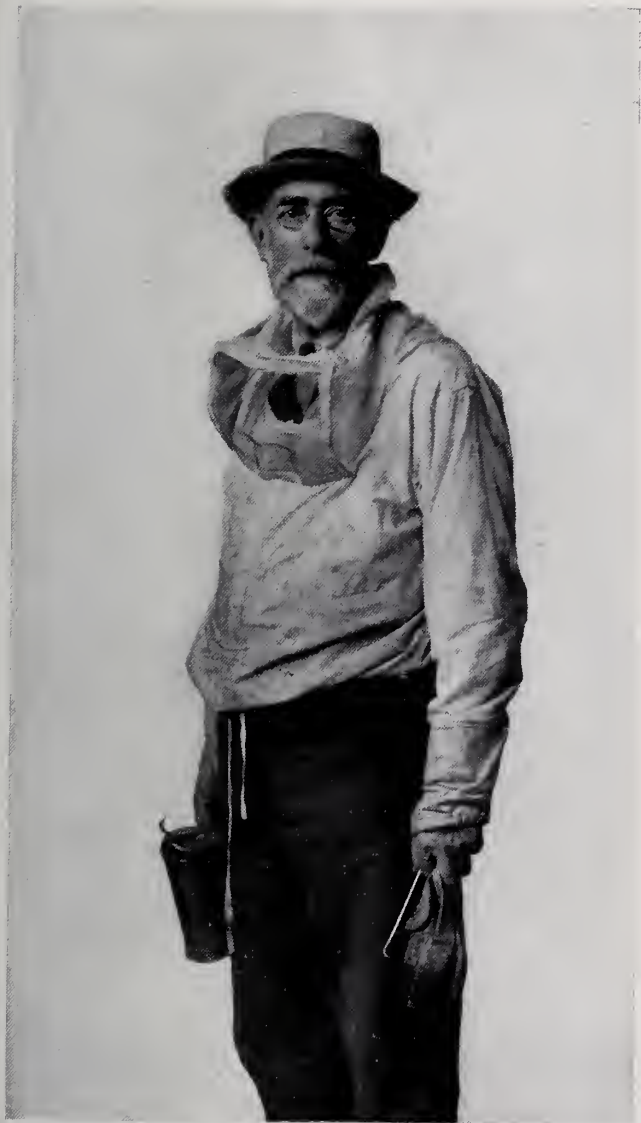
When the lecturer begins, there should be no break in the handling of the slides from beginning to end. To operate a double lantern, with a dissolver, keep the light, if electric, at its most effective brilliancy, and keep the slides changed, will tax the activity of almost any one. There is a difference in lecturers. Some rush the slides, while others will carry them evenly and smoothly. The good operator will handle one as evenly as the other, and the audience will never know how the man at the lantern may be taxed to keep the illustrations of the lecture in their places.

There are two ways of giving a lecture, or, if the exhibition is held in the home, perhaps it may be called a talk. The easiest and most common is to "talk to the pictures." This means keeping the pictures on the screen always just ahead of the explanation. When this is done the lecturer looks at his picture and explains it. Before one becomes familiar with his subject this method may be allowable, but most experienced lecturers will consider it an indication of weakness.

The right way is to deliver the lecture regardless of the pictures, and change them so that the views on the screen will appear as illustrations at exactly the right time. Make the story itself so interesting that your hearers will listen with close attention, and supplement what you say with views which clearly illustrate your subject.

A lecture given in this way is a joy to an audience, and develops the possibilities of the optical lantern to the utmost. The pleasure is enhanced by the information imparted, while the personality of the speaker throws over it all a glamor which completes the trio. It is information beautified. The amateur photographer, who makes a series of slides from his best negatives, and learns to operate an optical lantern properly, has a source of never-ending pleasure and instruction.

Apart from the pleasure he will get from seeing his favorite pictures upon the screen, he will learn much



F. Dundas Todd, 1911-12

Mr. Todd, formerly editor of "The Photo-Beacon," Chicago, now living retired in Victoria, B. C., sends me a collection of telephoto views of scenes around his new home. These do not lend themselves favorably to reproduction but I am sure that Todd's friends will be interested in this new view of Todd as a bee-farmer.—Editor.

about composition, tonal quality, and all the rest which go to make up a good picture. The faults of a negative will be magnified and emphasized, and he will be able to see them more clearly than he can in the negative or the print. Though these features are incidental, they indicate how the lantern may be helpful. Something which should not be ignored when considering the advantages which may accrue from its use. Most of us amateurs need instruction in exactly this way, and the lantern will help us get it. The investment is, in this way, made just that more valuable to the one who wants to learn more about making pictures. The screen is a relentless critic, and its influence is uniformly constructive.

Enlarging with the Lantern The photographer can use his lantern for enlarging, provided his negative is not larger than 4 x 5. Place the negative in the place for the slide-carrier. Put your bromide paper on the wall of the darkroom, or any other room made safe from daylight, or upon a movable easel, and allow the light to shine through the negative quite as you would through a slide. There is no limit to the size of enlargements you can make. You could make one the full size of your screen if you chose.

Any part of the negative may be enlarged by masking that which you do not want on the glass slide. Any part can be held back by using a card before the lens, or close up to the paper. In short, the optical lantern opens possibilities in this direction which the amateur could obtain in no other way. The Ingento Lanterns, introduced by Burke & James, are specially designed for use as enlarging lanterns, but are also fitted with an attachment which converts them into projection lanterns for use with lantern-slides.

In enlarging films, place them between two pieces of glass, bind them together with passepartout, or slide-binding tape, and insert in the lantern the same as a glass negative. In using glass negatives, the operator will be limited to 4 x 5 and $3\frac{1}{4} \times 4\frac{1}{4}$. But smaller films can be used. Place them in the center of the glass and mask up to them, to cut off the light, if you please; but, if the enlarged picture merely covers the paper, the light around it will do no particular harm, unless it requires a long

exposure. Then it will fog the edges. The masking requires but a few minutes, and can be performed with pieces of passepartout. If a number of films of the same size are to be used, it will be well to allow the mask to remain and to use it repeatedly.

The fact that negatives larger than 4×5 can not be used may seem like a drawback, but it must be remembered that the amateur sizes of negatives are scarcely ever larger. A few use 5×7 , but probably out of one hundred amateurs, taking them as they run, at least ninety-five would have cameras not larger than 4×5 .

It must be remembered, too, that the present tendency of all users of cameras is toward the small size, with a view to enlarging the best negatives. The expense of operation is less, and only the negatives that possess the quality desired need be enlarged. With a small camera and a lantern, the amateur is equipped to do even better work than he would do with a large camera.

Merely as an illustration of this argument, the case of one man who does much serious work is recalled. He writes many articles for trade papers, and excepting where exact reproduction, as in the case of machinery, is required, he uses a No. 1 A Special Kodak and enlarges his negatives in his lantern. He seldom uses a tripod, consequently his field outfit is reduced to the smallest possible compass. Yet, by enlarging as here outlined, he obtains prints which make beautiful reproductions. If one can do such serious work, surely the amateur need not hesitate to adopt the same method for his amusement.

The technical manipulation in enlarging with the lantern is precisely similar to that followed in other methods of enlarging and need not be recapitulated.

During the past two or three years, various instruments embodying the reflecting system of projection have been placed on the market. They are principally for projecting post-cards or any sort of print or diagram direct without the necessity of making a glass positive or lantern-slide. But of course anything can be used which is small enough to be placed in the lantern. With a

Opaque
Projection

Welsbach burner or an incandescent electric light, they will give a clear picture four to six feet in diameter. The colors of the cards or other objects shown are accurately reproduced, and interesting lectures can be given by using post-cards, book illustrations or other prints for entertainments or instruction.

When these reflectographs first appeared, they were crude in construction and their work was scarcely satisfactory, but those which are now obtainable are practically perfect instruments.

Since the projection is by reflection, not transmission, photographic prints can be reproduced, if they are not too large. If they are on printing-out paper, the picture will be in brown tones; if on developing paper, black and white.

Operators will find it unwise to attempt an enlargement beyond four to six feet, unless a high-grade lantern is used with the electric arc light. With the lower-priced instruments, anything larger is apt to fall off at the edges so much as to be practically unrecognizable. One who has a large collection of post-cards will find many uses for a lantern of this class. Since the light provided with these instruments must be gas or electricity, their use for the present is restricted to dwellings fitted with one or the other. Further improvements may make other lights available.

It is proper here to mention the **The Balopticon** Balopticon, in various models for lantern-slide and opaque projection, introduced by the Bausch & Lomb Optical Company. These, like the better grade of lanterns, are instruments of precision. Either transparencies or opaque objects may be projected, and the lanterns in this line have all the qualities which an amateur could desire in an instrument of this sort. There is, of course, a wide field of usefulness for an instrument which will project post-cards, newspaper and magazine illustrations, and other opaque objects, without being obliged to make lantern slides of them. Not everything of that character is worth while making into a slide, and this method of exhibition enables one to see the pictures without resorting to the labor or expense of slide-mak-

ing. The principle is one of reflection, and a powerful light is required to project any considerable distance or size, but the resulting picture is almost as good as can be made with a slide. The subjoined table gives the projection, size of image on the screen, and the focus of lens required. It may be well to point out that only these perfected instruments are capable of projecting any such distances as are described here. The table is from Bausch & Lomb, and represents the work of their experts :

Focus of Lenses	Distance from Objective to Screen, in feet							
	15	20	25	30	35	40	50	60
10-inch . . .	$6\frac{1}{2}$	9	11					
12-inch . .	$5\frac{1}{2}$	7	9	11				
15-inch . . .	4	$5\frac{1}{2}$	7	$8\frac{1}{2}$	10	$11\frac{1}{2}$		
25-inch . . .				5	6	7	$8\frac{1}{2}$	$10\frac{1}{2}$

A similar series offering models for both lantern-slide and opaque projection is the Radioptican line, introduced by the H. C. White Co. These are equipped for use with acetylene gas, house gas with incandescent mantles, and incandescent electric light. The full series of Balopticons and Radiopticans are described in detail in the catalogues of their respective manufacturers, which the interested reader will doubtless consult for fuller particulars of the manipulation of these instruments.

The simplest and best screen for the projection of lantern pictures is a plain plastered or whitewashed wall. This is sometimes available in schools and lecture-rooms. But a wall is neither portable nor adjustable, so the lanternist generally falls back on a cotton or linen sheet suspended or stretched so as to give the necessary area of white reflecting surface. The superiority of the wall lies in its perfect opacity and smoothness of surface. This serves to indicate the prime essentials in a screen for projection.

For a very small picture disk, no linen screen is so good as a sheet of white paper or card. For screens of cotton or linen, sheeting can be purchased eight feet wide. The fabric should be closely woven and very white. If two widths are joined, the seam should run horizontally rather than vertically. A good muslin screen, with reinforced corners and top and bottom roped ready for stretching, can be bought ready for use at a cost of less than five dollars for an area of eight feet square. Opaque (coated) screens, mounted on spring rollers, are obtainable at from ten to fifteen dollars, faced white on both sides, or faced with aluminum on one side. These are screens *de luxe*.

**Buying a
Lantern**

The cost of a lantern may, perhaps, seem a hindrance to some amateurs. But they need not fear. Leading companies make lanterns suitable for home use complete, with carrying case, for twenty-five dollars. Some can be bought for even less, and it is always possible to find second-hand instruments which can be purchased for considerably less money than new ones cost, yet they will do quite as satisfactory work. The one the writer is now using in his home work and enlarging cost him fifteen dollars. This included a one-hundred-candle-power electric light and ten or fifteen yards of insulated wire. The equipment for gas light would have been the same.

Dissolving stereopticons cost more. One suitable for use in a large hall, with all attachments, will run up as high as \$250. The writer recently saw one that cost almost \$1,000. Those that cost \$500 are not uncommon. It is possible to buy two low-priced lanterns and combine them oneself, and make a satisfactory dissolving lantern for home use for the price of two lanterns. It is practical wisdom to get the best possible instrument, but there is always opportunity to secure good second-hand lanterns at less money than new ones will cost.

Probably, for all ordinary home purposes, it would be better to pay somewhere near fifty dollars for a single lantern, with such a light as seems best adapted to the individual's requirements. One could be reasonably certain that a lantern of this price would be good enough to do whatever one might choose. Two lenses, of long

and short focus, are needed, but projecting lenses are not expensive, and unless the operator intends going into halls of some size, the short focus is sufficient for the time. Carrying-cases are usually furnished with the lanterns. Turned on its side, the modern case furnishes a good table upon which the lantern may be set up.

Illustrated lectures and talks are becoming increasingly common everywhere. In many localities, they would be more numerous if there were means of showing the slides. If an amateur in a small town purchases a lantern and lets the fact be known, he can readily get sufficient engagements in one season to partially pay the price of his outfit. Perhaps he may do better.

The cost of operation for one's own amusement is not heavy. Oxy-hydrogen is most expensive. The carbons for the electric arc light cost little. An incandescent light costs more than carbons, but it lasts longer. Gas and other lights are alike inexpensive. The operation of a lantern need not deter one from buying. The expense of using will scarcely be felt.

If used with care, a lantern will last practically a lifetime, and do quite as good service at the end as at the beginning. There is nothing to get out of order, nothing to break, excepting such parts as condensers, and these will not often do so if protected as they should be from sudden blasts of cold air. A screen of some sort on the side next to the possible drafts will prevent breakage. It would be better, however, to mount them rather loosely in the rings, to allow for expansion. This will reduce the danger of breaking under the influence of the heat. The electric arc light is the worst in this respect. With others the danger is small.

A little care will reduce such accidents to a minimum and keep down the expense for repairs. Care for the lens, too, will prevent mishaps, and its use will continue indefinitely. A cap, lined with velvet, comes with every projection lens, and this should be kept over it when it is not in use.

These little things do not seem like much when taken singly, but they go a long way toward keeping down

the expense of operation. Besides, if care is exercised in these small matters, your lantern will be practically permanent. With no breakages, no repair expenses will be incurred, and the cost of your instrument will be reduced to the price of the investment required to obtain it and the running expenses needed to maintain the light. Aside from these, there can be no expense.

The owner should learn every part of his lantern, so that he can keep it in repair and know when anything is the matter with it. If he doesn't do this, a possible source of increased expense is revealed. But this is a matter which each individual must work out for himself. It is, however, perfectly true that cost is always a relative term, and may, in the use of the lantern at least, be kept at so low a figure as to be negligible. The lantern itself will not pile up expense, but careless or unintelligent handling, with the neglect of small details, will necessarily increase the cost of upkeep.

**Commercial
Information**

The successful use of the lantern, whether for projection or enlarging, depends very largely upon the careful choice of an instrument adapted to the needs or requirements of the individual, and his mastery of its manipulation. This involves a survey of the apparatus available, either in the catalogues of the different makers or by personal inspection at the stores of dealers who make a specialty of lantern equipments and supplies. As a guide to the reader, I suggest a careful reading of the catalogues issued by the Bausch & Lomb Optical Company, Rochester, N. Y.; Underwood & Underwood, T. H. McAllister & Co., H. C. White Company, and Chas. Beseler Company, New York; Williams, Brown & Earle Co., Philadelphia, and Burke & James, Inc., Chicago; which practically exhausts the list of firms in this line. With the aid of the information given in the preceding pages, it will not be difficult for the reader to select from the lists of these makers an instrument which will completely satisfy his every reasonable requirement.

BURTON H. ALBEE

Notes and Comment

A memorial to the late Henry Snowden Ward, in recognition for his life work for photography and photographers, is being widely discussed among his many friends in Britain and America. In furtherance of this proposal, a representative committee has issued an appeal for funds, and already the sum of £106 (\$530) has been received and acknowledged by the Hon. Treasurer of the Fund, F. Martin-Duncan, Esq., Spring Cottage, Oxted, Surrey, England. It is proposed that the funds collected shall, according to the expressed wish of Mrs. Snowden Ward, be used to benefit photographers or process workers in need of assistance, either by the establishment of a photographic charitable fund, or the support of an apprentice in the photographic or process industry, or the award of a scholarship for photographic efficiency. The final decision as to these proposals can be arrived at as soon as the amount available can be ascertained.

Subscriptions to the Snowden Ward Memorial Fund should be sent as early as possible to the Hon. Treasurer at the address given above. Mr. Ward had hosts of friends on this side of the Atlantic and, if the Memorial is brought to their attention in time, I am sure that the Fund will be considerably augmented by his American admirers.



I record with great regret the death of an old friend, Mr. William Gill, of Colchester, England, a progressive professional photographer, who was perhaps more keenly interested in the advances in American professional portraiture than many American photographers. In his work William Gill was a master of technique, and steadfastly followed simple and natural methods,

instead of the many individualistic fads and fashions which have latterly dominated professional portraiture. He originated not a few distinct styles in portraiture, and was an advocate of real furnishings, instead of the sham or artificial accessories commonly used in professional studios.



An extremely interesting series of papers on "The Analysis of Facial Expression," by Sadakichi Hartmann, intended for the portraitist, is now appearing in "Abel's Photographic Weekly" (Cleveland, Ohio, \$1.50 per year). The subject is one which has been sadly neglected, and everyone interested in portraiture should give these papers the careful study they deserve. The series began in the "Weekly" dated February 24.



While it is true that the high-priced lens is well worth its price, as compared with a similar lens at a lower figure, it is foolish indeed to be prejudiced against a lens because of its comparatively low price. This is mentioned because several subscribers have written me expressing uncertainty as to the efficiency of the Eurynar (a double anastigmat made by Rodenstock, of Munich, and sold in this country by Kreps & Stelling, Augusta, Georgia), because this lens is offered at a price considerably lower than that asked for other anastigmats identical in speed and other lens points. The reputation of the products of the Rodenstock factories is second to none among European photographers, and what I hear from American users tells me that the Eurynar does not fall short in any particular. But the real test of any lens is actual trial on the camera, and, inasmuch as the importers offer the Eurynar on ten days' trial before purchase, the lens buyer who wants to "save" has little excuse for doubt or uncertainty. Which reminds me that Messrs. Kreps & Stelling are introducing several new specialties this spring, among them the Rodenstock Pantogon, a wide-angle lens embracing a usable view angle of 130° , with a flat field, working at $f/18$; and a new reflecting camera, the

Mentor, made by Goltz & Breutmann, Dresden. The new 1912 catalogue of Kreps & Stelling should be worth sending for.



Sometime ago the head of one of the largest photographic manufacturing firms in the world expressed the opinion that the "British Journal of Photography" is the most interesting photographic paper published. I agree with him. The "B. J." is incomparable in its field. The professional or commercial photographer who does not see it week by week misses a liberal education, and any professional photographer can have it sent him free for a month by simply sending his business card to the publishers, Hy. Greenwood & Co., 24 Wellington street, Strand, London. Incidentally, this note is a tribute to the splendid "Colonial and Foreign Number," of March 29, a clever piece of journalistic work, of which Editor George E. Brown and his publishers may well be proud.



The Taylor-Hobson Co., 1135 Broadway, New York, have placed on the market a single achromatic lens known as the Cooke Achromatic Portrait lens. This is really the old Rapid View and Portrait lens made twenty years ago by Taylor & Hobson, of Leicester, England, which has been used by artists such as Gertrude Käsebier, Clarence White and Alfred Stieglitz, in preference to the modern anastigmat, for certain sorts of pictorial photography. It is noteworthy for its softness of definition, roundness and plasticity of modeling, with an accuracy of drawing which is particularly pleasing in portraiture. Those who seek these qualities in their work, and do not demand extreme speed or sharp definition, will be pleased with the performance of this lens.



I am pleased to see that the old, reliable "Photo Beacon Exposure Tables" have reached their seventieth thousand. In the new edition, just received, the

list of plates and plate speeds is augmented and revised to date. Price 25 cents. Published by "American Photography," Boston, Mass. From the same publishers also comes a new edition of Osborne's "How to Make Enlargements" (10 cents), a practical pocket book full of useful information to the man with a small camera who wants to make enlargements on bromide paper from his small negatives.



For those who want a special service, or individual, expert care in the development of their films, or in the making of enlargements or lantern-slides, or expert advice in photography, Miles Greenwood, 84 Cottage street, Melrose, Mass., offers his wide experience and unusual facilities in these specialties. It is a pleasure to me to endorse Mr. Greenwood's claims as a specialist in photography. His success in building up, in a little Massachusetts township, a flourishing business with amateurs in all parts of this big country, despite the insistent claims of local competition everywhere, speaks eloquently for the quality of his work and the satisfaction found in his special service.



Elbert Hubbard, of East Aurora, N. Y., has written for Ansco Company, Binghamton, N. Y., a clever "preachment" entitled "Snap Shots and Education." It is one of the most enjoyable incitements to the use of the camera in daily life I have ever read, and should accomplish great things in popularizing photography if widely distributed. Copies can be had by sending a post-card to Ansco Company, Binghamton, N. Y., mentioning this note. The 1912 Ansco Camera Catalogue should be asked for at the same time. I am told that it will offer many novelties in camera construction of special interest to the hand-camerist.



Alvin Langdon Coburn, the pictorialist, sends me a cheery note from the far West where he and his mother have spent many months since their arrival on this side

last year. Among other things Mr. Coburn tells me that he has a lot of new prints of western scenes to show here on his return East, a pleasure which I hope to share with my readers. An exhibition of this work was given recently in Los Angeles, the fifty prints shown including twenty Coburn portraits of well-known men. The exhibition was well attended and excited much favorable comment.



"What Lens Shall I Buy?" is the title of an illustrated booklet of twenty-two pages published by the Bausch & Lomb Optical Co., Rochester, N. Y., which anyone interested can obtain for the asking. It is intended to serve as a practical guide in the selection of a lens for any and every branch of photographic work, and gives the reasons for individual choice in each case. Used in conjunction with the catalogue of the B. & L. Opt. Co., this handy little guide helps one considerably. When writing for it, the reader should also ask for a copy of "Useful Tables for Photographers," a compilation which contains comparison of F. and U. S. diaphragm numbers; reducing and enlarging tables; table of view angles; tables showing height of standing figures and of heads on ground glass at various distances for portrait work; diagonals of plates; shutter speeds; lens facts, and other information for the photographer, in convenient form.



An unusually interesting book, in which photography tells the whole story without the aid of text or other embellishment, is the volume: "Philadelphia and Vicinity," published for the Twelfth International Congress of Navigation, Philadelphia, Pa., 1911. With the one hundred and thirty illustrations here presented, one gets an altogether satisfying view of the waterways about Philadelphia, beginning at the Delaware Breakwater and ending at the Beach at Atlantic City or the Stone Bridge spanning the Susquehanna river at Harrisburg, as one may prefer. Of special interest are two telephoto views of Washington, made

from the top of the Washington Monument, and the telephoto vignette of Philadelphia, on the front cover, by Mr. F. D. Maisch, of the Philadelphia Commercial Museum. The book is a fine showing of the usefulness of photography in presenting the special features of a city, and I am grateful to Mr. Wilfred H. Schoff, Secretary of the Museum, for the opportunity to see it.



The new illustrated catalogue just issued by the Multi-Speed Shutter Company, 317 East 34th Street, New York, is "an eye-opener," and must be seen to be appreciated. Send for a copy before the edition is exhausted.



A big convenience for the amateur is the Brownie Enlarging Camera Illuminator put out by the Eastman Kodak Company, which can be seen at any Kodak store. This illuminator gives the advantage of the use of a 75-candle-power Tungsten light, and does away entirely with the necessity of protracted daylight exposures where the electric light is available. It is primarily intended for use with the Brownie Enlarging camera, but it is also adaptable for enlarging with a Kodak, for contact printing, and other uses.



Among my visitors during the past month was Dr. C. E. Kenneth Mees, one of the most interesting men in the photographic world today. As the scientific director of the firm of Wratten & Wainwright, Ltd., Croyden, England; a vice-president of the Royal Photographic Society; author (with S. E. Sheppard, D. Sc.) of "Investigations on the Theory of the Photographic Process," "The Photography of Colored Objects," "Orthochromatic Filters," "An Atlas of Absorption Spectra," and many other papers dealing with difficult color problems, Dr. Mees has made for himself a reputation the like of which no other man of his years (he is not yet thirty) can boast. The object of Dr. Mees' present visit to this country is to arrange the planning and equipment

of a new research factory which the Eastman Kodak Company is building for him at Kodak Park, Rochester, N. Y., which is to be the largest and most completely equipped institution of its kind in America, and of which Dr. Mees will take charge before the end of the year. It is also announced that the Eastman Kodak Company has acquired the business of Wratten & Wainwright, Ltd., who have long held the premier position among European manufacturers of color sensitive plates, color filters and similar specialties. These products of the Wratten factory will be imported and made available for American photographers and process workers until a plant can be built and equipped for their manufacture here.



The Wollensak Optical Co., Rochester, N. Y., since Mr. Oliver H. Bodine took charge of its Publicity Department, has issued so many new catalogues, booklets, dodgers, folders, souvenirs, leaflets, and what not, concerning its lenses, shutters, and other optical products, that I freely confess my inability, on the score of time and space, to say anything about them here other than to ask the reader to write for "everything your Mr. Bodine has put out since the new year arrived." By sending this request to the Wollensak Optical Co., the gentle reader will get sufficient lens and shutter facts (all daintily printed on the best of paper) to keep him very busy until the summertime really arrives.



A very convenient hanger, giving formulæ for tank development with Agfa Glycin, Agfa Metol-Hydro, Agfa Ortol, and Agfa Rodinal, comes to my table from the Berlin Anilin Works, 213 Water Street, New York. Mr. George L. Barrows, advertising manager for this firm, is a close rival to Mr. Bodine (see note above) in the quantity and quality of publicity matter produced, and the only way to keep abreast of his activities is to get your name registered to receive copies of everything published by the advertising department. The booklets of the Berlin Anilin Works are always practical and to

the point, giving useful formulæ and short cuts to results.



The increasing desire among amateur photographers to finish and even enlarge their own photographs brings me many inquiries for a reliable, dependable and altogether common-sense enlarging apparatus. While no single enlarging equipment is equally suitable for all conditions and circumstances, one may safely advise the new Soldak camera (G. Gennert, New York), as meeting most requirements in the simplest and most efficient way. The Soldak is made for daylight enlarging in two sizes, from $3\frac{1}{4} \times 4\frac{1}{4}$ to 8×10 and from 4×5 to 16×20 . Those who seek a compact enlarger within these limits would do well to get the descriptive circular issued by the manufacturer.



Will readers, subscribers, advertisers and others please note that on and after the first of May, 1912, the offices of THE PHOTO-MINIATURE and Tennant & Ward will be located in the Terminal Building, 103 Park Avenue (41st street and Park Avenue), New York.



Cardinal Gibbons in His Study

An example of portraiture having peculiar interest and value for publication

By Waldon Fawcett

The Photo-Miniature

A Magazine of Photographic Information

EDITED BY JOHN A. TENNANT

Volume X

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Number 120

Marketing Photographs for Publication

With a few exceptions, the little books in this series have dealt with photography for pleasure. The monograph, which deals with the marketing of photographs for publication, is wholly devoted to the other side—photography for profit. Surrounded as we are by newspapers, magazines, books and prints of all sorts, which depend for their chief interest upon the use of illustrations reproduced for the most part from photographs, it is natural that amateur and professional photographers should want to know about the opportunities offered by this field to their skill with the camera. Some are perhaps curious only to see their work reproduced in the public prints. The desire to publish is as old as the everlasting hills. But, nowadays, the desire for fame is secondary to the desire for money, and the public demand for pictures of everything that is under the earth, upon the earth and above the earth is so widespread and so insistent that the photographer sees fame and money plainly writ on his camera-finder or ground-glass—if he but know how to market his pictures. Here, then, we have the purpose and scope of our adventure in these pages. The monograph is the work of one who has given many profitable years to the cultivation of this special field, and embodies his practical experience. Its information should be worth hundreds of dollars to the

man or woman who needs it, and will carefully ponder what is set forth and apply it with intelligence.

A word of warning is necessary for the over-enthusiastic. It has been said that there are "barrels of money" in selling photographs to newspapers and magazines. This is true—for some. There are not a few instances where photographers have made thousands of dollars from the sale of publication rights of a set of three or four negatives. But such instances are exceptions to the rule. Here, as elsewhere, making a barrel of money means a good deal of hard work. I would much rather have the reader understand clearly in the beginning that he can easily secure with his camera a very fair addition to his income; and that, if he cares to specialize in the making and marketing of photographs for publication, he will in time find it to be a very profitable field and well worth while.—[EDITOR.]

Photography for publication is a product of the past quarter of a century, and is the logical outcome of that specialization which permeates modern life. In one sense it is the broadest of photographic fields, since it overlaps most of the older branches of the art. For example, specimens of portraiture, routine subjects of the architectural and commercial photographer, and the chance snap-shots of the amateur on pleasure bent, may all alike be classed as photographs available for publication; and yet there obtain certain conditions that must be conformed to by all prints for illustration.

Most of those who have given advice to amateurs and professionals ambitious to make photographs for publication have counseled them to concentrate their attention on this or that class of photographs, and have advised them to avoid, as they would the plague, certain other subjects,—the latter usually open to no more serious indictment than that they might be construed as commonplace. And yet there is scarcely any photograph—provided it conform to basic standards of reproductive quality—for which a remunerative market may not be found, if only its possessor will display energy and discrimination as regards the time, the place, and the price, in the marketing of the subject for publication.

Value of Novelty Of course, there is no intention to set a premium upon the obvious and the commonplace in photographic subjects.

In this field, the speediest recognition and the greatest monetary rewards will almost invariably go to the originators of novelties, who can perform the supposedly impossible feat of discovering something new under the sun, or at least can present an old subject from a new angle or in new guise. At the same time, it is a great mistake for the photographer in this line of work to neglect subjects close at hand simply because they have been rendered familiar by long association. Just as in literature some of the most successful novels are those which record in a homely way the lives of everyday folk, so in photography for publication there is a constant demand for subjects that tug at the heartstrings, even though they might seem to have been worn threadbare by repetition.

A Common Delusion The photographer for publication is apt to think that all his ambitions would be realized if only he could journey to foreign shores or to distant corners of our own country in search of material, or if he could attend the spectacular public events that focus the attention of the world every now and then. This is a delusion. Any locality loses, upon close acquaintance, some of the picturesque attributes with which imagination has endowed it, and the great popular events to which photographers flock from far and near beget an unwholesome competition, which reduces the profits, if it does not sap the enthusiasm, of each individual worker. The real triumph, then, it would seem, is that of the photographer in this field who makes the most of what might be termed his natural opportunities, and who utilizes the material that lies ready to hand in his own district, be it large or small. He can hope for success, however, only if he has a pretty thorough knowledge of his market and the methods of marketing.

**A Point Need-
ing Emphasis** It is desired to emphasize, just here, that photography for publication is of much wider scope—that is, appeals to a much more extensive market—than is generally supposed.

It is, indeed, a popular misconception that regards photography for publication as synonymous with "press photography," although the latter, in its broadest interpretation, is the chief outlet for pictures adapted to reproduction. In some of the supplementary fields, the expansion of the market during the past few years has been proportionately as great as that which has characterized the pictorial demands of the newspapers and periodical press, and those who give their attention to subjects outside of the beaten track can find further consolation in the fact that an international market for illustrative material is developing that will grow more and more remunerative as time goes on.

The market for photographs for publication may be apportioned in five general divisions, which, classed in the order of their importance, are as follows :

(1) **The Press.**—In its most sweeping application. Comprising not only daily and weekly newspapers, and weekly, monthly and quarterly magazines, but the whole vast range of scientific, technical, religious, agricultural, trade and class periodicals.

(2) **Books.**—Comprising not merely the familiar classes of illustrated volumes of travel, history, description and research, but such generally overlooked markets as guide-books, school-books, etc.

(3) **Souvenirs or picture post-cards**—a valuable market in itself.

(4) **Art Reproductions.**—Embracing all mediums from the most costly photogravures and lithographic work to such novelties as pictorial calendars, etc., usually sold by art stores.

(5) **Miscellaneous.**—Covering such employment of photographs as for catalogues and all other forms of advertising, in lantern-slide manufacture, utilization for decorative china, etc.

Staff Photographers In every division of this rather complex field it will be found that some few firms (in some instances extensive users of pictorial material) rely for their photographic contributions wholly upon staff photographers whose services they control, just as there are certain periodicals in the

United States that publish no text in their columns save that which is written by their own editorial or staff writers. However such publishing houses are greatly in the minority. The vast majority of editors and publishers prefer not to be hampered by such limitations, and purchase photographs where and when their judgment dictates. Even in the case of newspapers and publishers having staff photographers, these latter seem to be regarded as a mainstay rather than a sole source of supply. Such firms are usually ready and willing to purchase from outsiders subjects that specially appeal to them, or that represent material unobtainable by their staff artists, however skillful, they be. In order, however, not to waste ammunition it behooves every photographer in the field to take due cognizance of the publishing houses that constitute exceptions to the general rule. Even though, theoretically, every editor and publisher may be open to persuasion in the form of a particularly pleasing picture, it will be scarce worthy the effort of a photographer to continually carry offerings to an establishment that is closed to outside workers.

Technical Requirements From a technical standpoint, the qualifications for success in making photographs for publication are not especially exacting. Obviously, the aspirant must have mastered the everyday technics of photography, and it will be to his advantage if he can satisfactorily operate all types of apparatus from an 8x10-inch plate camera to a small film camera of the reflecting type. But, once well grounded in fundamental principles, he will find that to keep pace in photographic manipulation is a small matter compared with the ever-changing problems of what subjects to select for picture-making, and where and how to market the material, once it is in hand.

The photographer for publication must have one watchword in his picture-making, and that is definition—always definition. In the average reproductive establishment, what are irrelevantly termed “fuzzigraphs” are barred. The average art editor demands clear, sharp photographs, with the maximum amount of detail, and leaning to contrastiness rather than to softness.

Consequently, the amateur or professional who photographs for publication must insist on these selling points, whatever be his temptation to produce negatives with elusive, atmospheric effects worthy of Whistler.

The Amateur's Advantages As may be surmised from the foregoing, the profession of photography for publication is open, happily, to all users of the camera. Indeed, the advanced amateur is, with no extra investment on his part for equipment, placed more nearly on an equality with the professional than in any other activity in the whole range of photography for profit. Moreover, an amateur, favored by freshness of observation, or exceptional opportunity, may obtain with little effort and no especial preparation a negative that will yield greater financial returns than any plate secured by a professional in years of specialization in press photography. This has happened again and again. Another tremendous advantage of photography for publication is that it does not necessarily monopolize the entire time and effort of the devotee. The amateur may turn to it, at will, as a "leisure hour" occupation, and the professional may cultivate it as a "side line," in measure commensurate with the financial returns. Indeed, it is not certain that photography for publication is not more ideal as a side line than as a serious vocation or business.

Prices The prices generally commanded by photographs acceptable for publication range from \$1 to \$5 each, as may be seen from the list at the end of this monograph. Less than a decade ago, the most prevalent prices were \$1 and \$1.50, or at most \$2; but prices have been of necessity advanced somewhat, owing to a combination of influences, among which may be mentioned the increased cost of living, a corresponding increase in the cost of photographic equipment and supplies, and the necessity for the most progressive of the photographers for publication going farther and farther afield in quest of the unusual,—a quarry that may entail heavy traveling and hotel expenses.

In this second decade of the century, we find the metropolitan newspapers, the leading magazines, and



Music on a United States Battleship

A photograph which, apart from its illustrative interest, has value also for advertising purposes due to the prominence of the talking machine in the composition

By Walden Fawcett



An example of the class of subjects in demand for publication in
magazines, for calendars, souvenirs and postcards

Furnished by Waldon Fawcett

popular weeklies, paying at the rate of \$3 each for a large share of the photographs they purchase for publication. Some editors or publishers expect or demand some price concession when purchasing a considerable number of pictures from one photographer at one time, and under such circumstances we often see the \$3 rate scaled to \$2. The editors of some of the high-grade periodicals of great national circulation pay from \$5 to \$25 each for photographs that meet their somewhat exacting requirements, and this latter is not an unusual figure for photographs purchased for art-reproduction, for calendars, post-cards, etc.

But if we venture to designate \$2 or \$3 each as the average price (it is futile to attempt to determine a standard price) for photographs for publication, the beginner must not gain the idea that this basis is universal. There are some periodicals of general circulation that will not pay more than \$1 or \$1.50 per print, and the contributor may encounter some editors—presiding over journals of small circulation—who will unblushingly offer him 25 to 50 cents apiece for photographs of the highest quality. Not a few periodicals conduct weekly or monthly prize photo contests with a first prize of \$10 or \$5.

**Another
Scale**

There are some periodicals, though the number seems to be decreasing, that pay for accepted prints at "space rates,"—that is, the amount of remuneration is determined by the area occupied by the reproduction on the printed page of the periodical. This basis of such computation is a fixed rate by the column or by the inch. This plan is much in vogue among European illustrated weeklies, and it offers there some advantages to the photographers, inasmuch as most of these weeklies have pages of large size, and the photographer who is fortunate enough to secure a picture deemed worthy of reproduction in the dimensions of a full page, or mayhap a double page, may receive a fee as high as \$25 or even \$50. In America, however, there would seem to be little difference (in the net results to the photographer) between the two systems of payment. The writer has in mind a well-known weecly that has a space rate 25 cents per

inch for both pictures and text. It will be seen that in the case of a photograph reproduced on a printing plate having a width of five inches and extending across two columns—a fair average size—the remuneration to the photographer would be \$2.50; whereas, if the cut or half-tone block extended over three columns, the allowance for the picture would be \$3.75.

Special Assignments Many photographic illustrations for books are made or supplied by the authors on a special arrangement of one kind or another (in some instances an extra allowance in royalty); but, where book publishers purchase prints separate and apart from the text, the prevailing prices are much the same as in magazine and newspaper circles, with the \$2 to \$3 scale obtaining with the more prominent publishing houses. Publishers of what are known as "subscription books," that are to be put out at a low price, will in some instances buy only prints that are offered at very moderate prices; and this is likewise true of the publishers of guide-books designed for local circulation in various communities.

Selling Points In all divisions of the market for photographs for reproduction, questions of price, and even of acceptability, are likely to be influenced or determined by the qualifications of exclusiveness possessed by the pictures offered. For the benefit of the beginner, it may be explained that all photographs offered for publication are either exclusive or non-exclusive. An exclusive photograph, in the ordinary acceptance of the term, is one which is original and unpublished, and which carries to its purchaser the sole right of first publication. In such cases, the photographer supplying the subject thereby obligates himself not to allow publication elsewhere, or to sell or to give out any other prints of the subject until the original purchaser shall have made such use of the print as shall have been agreed upon. A non-exclusive photograph is one which carries no such monopoly for prior use. The presumption in the case of a non-exclusive photograph is that it has already been published, or has been sold for publication, or at least that the owner of the negative is at liberty to dispose of

prints to more than one publication for simultaneous or indiscriminate reproduction.

Editorial Viewpoints There are some editors and publishers who, because their publications, occupy distinctive fields, or for other reasons, set small store by exclusiveness ; but for the most part, other things being equal, a photograph that is exclusive will find a more ready sale, and command a somewhat higher price, than the picture which is not exclusive. Photographs offered for publication which are not specified otherwise are generally supposed to be non-exclusive, but the photographer will do well to have a clear understanding if there is any chance of doubt or uncertainty on this point. Similarly is it wise for a photographer to provide a definite status in the case of photographs offered as "exclusive," since the degree of protection demanded by a purchaser of exclusive rights may vary somewhat in the case of different publishing mediums, or publications in the same general class.

Time Limits Generally speaking, a magazine or newspaper editor who purchases an exclusive photograph is content to have the photographer sell duplicate prints from the same negative to other publications, provided he allows a reasonable length of time to elapse after the initial publication. The editors of several representative monthly magazines who have been consulted suggest six weeks to two months as a "reasonable time" following publication, for the continuance of the exclusive restriction. Here again, however, the photographer is warned against taking too much for granted. There are some editors who wish a monopoly of an exclusive subject for intervals varying from three months to a year. On the other hand, there are editors of class and trade journals who are willing to pay "exclusive prices" for the sole use of photographs in their respective publishing fields, and who do not care what use the photographer makes of this material in periodicals reaching other classes of readers. Similarly it is customary for the editors or publishers of newspapers in large cities to buy exclusive rights for news pictures or other timely photographs, merely as applied to their respective cities

or states. It is this custom on the part of newspapers that renders possible the apparent anomaly of "syndicating" an exclusive photograph for simultaneous publication in many different cities. To secure such simultaneous publication involves the fixing and enforcement of a "release date," fixed sufficiently far in advance to allow for the distribution of the duplicate photographs. In some instances, "city rights," or "state rights," on an important picture or series of pictures, are sold without any restrictions as to time of publication or reference to the appearance of the subjects in adjoining territory.

In the Book Market Book publishers who contract for the exclusive rights of photographs are likely to demand that their monopoly continue for a much longer period than in the case of the periodical press, for the "life" of a book is presumably much longer than that of a magazine or newspaper. Calendar publishers and like interests are liable to expect a period of exclusiveness of several years' duration, and there are art publishers, purveyors of high-grade picture postcards, etc., who seek exclusive rights practically for all time, and who are unwilling, in some instances, to contract for photographic subjects unless they can control them thus absolutely. From the standpoint of the photographer the sale of a photograph under such conditions is virtually equivalent to parting with or destroying the original negative and transferring the copyright (if a copyright has been taken out), since the photographer is never at liberty to make any further use of the subject. It is natural for the photographer of any experience in publication work to expect some special recompense under such circumstances, and usually art publishers, lithographers, etc., are quite prepared to pay special prices for sole rights to subjects that strongly appeal to them as likely to be popular.

The Advertising Field Another market that must obviously exact the exclusive use of subjects is that made up of the merchants, manufacturers, transportation agents, etc., who make use of photographic subjects for advertising purposes, trade marks, etc. This is a very special market, with little in

common with other branches of the publishing field. Photographs are being used most effectively and to a constantly increasing extent for advertising, not only in the advertising pages of periodicals, but in street cars, on billboards, in catalogues and, in short, in every channel of publicity and promotion work. From the very nature of things, however, most of these photographs have to be made to order, in accordance with definite specifications as to pose, environment, etc. It is only occasionally that a photographer, giving free rein to his fancy, can produce a subject that will appeal to an advertiser, although there are always opportunities in this sphere, particularly with reference to attractive pictures of pretty women and appealing likenesses of children. The remuneration in this field runs to high figures with an average of, say, \$25.

Its When a large advertiser is captivated
Rewards by such a "free lance" photograph that comes to him unsolicited, he is usually willing to pay a very fair price for exclusive rights. More likely than not, he will ask the transfer of the original negative and the copyright as above mentioned, but prices ranging from \$10 to \$75 are by no means exceptional for such subjects. The photographer who can produce a subject that will serve as an ideal trade mark for a well-known manufactured product may have visions of even greater rewards, for trade marks attain tremendous influence if they are effective,—as witness the "His Master's Voice" of the Victor Talking Machine Company. Even ordinary photographs made for other purposes may have value for manufacturers if they show their products installed or in use in environment that in itself constitutes a testimonial. For the specially posed photographs which many firms have made to order to portray their products in use, they may expect to pay no more than the prevailing rates for high-class commercial photography; but the photographer who can combine striking originality with artistic ability can command the premium that such a combination usually justifies. One valuable means to the end of securing such commissions from large advertisers is for a photographer to control the services of trained

models. Male or female models are required for the making of most of these fanciful advertising subjects, and the photographer who has a wide choice of available models for this field is in possession of a valuable asset. THE PHOTO-MINIATURE No. 63 dealt with this subject in an interesting way.

**Keeping a
Record**

In order to maintain the detailed record that is essential to the satisfactory marketing of exclusive photographs, if for no other reason, every photographer in this field is urged to resort to some sort of special bookkeeping system, arranged in accordance with his individual needs and preferably conducted on the card-index or loose-leaf plan. Such a system will not only afford the usual chronicle of receipts and expenditures but, better yet, will provide a compact and readily accessible record of every exclusive print sold with all the necessary details as to date of sale, date of publication, and the length of the interval following publication covered by the exclusive rights—if such rights have not been given in perpetuity. Without some such system, it will be virtually impossible for the photographer who sells many photographs for publication to keep track of his outstanding subjects, and embarrassing and costly errors are almost certain to occur if there is attempted dependence upon mere memory.

**Terms of
Payment**

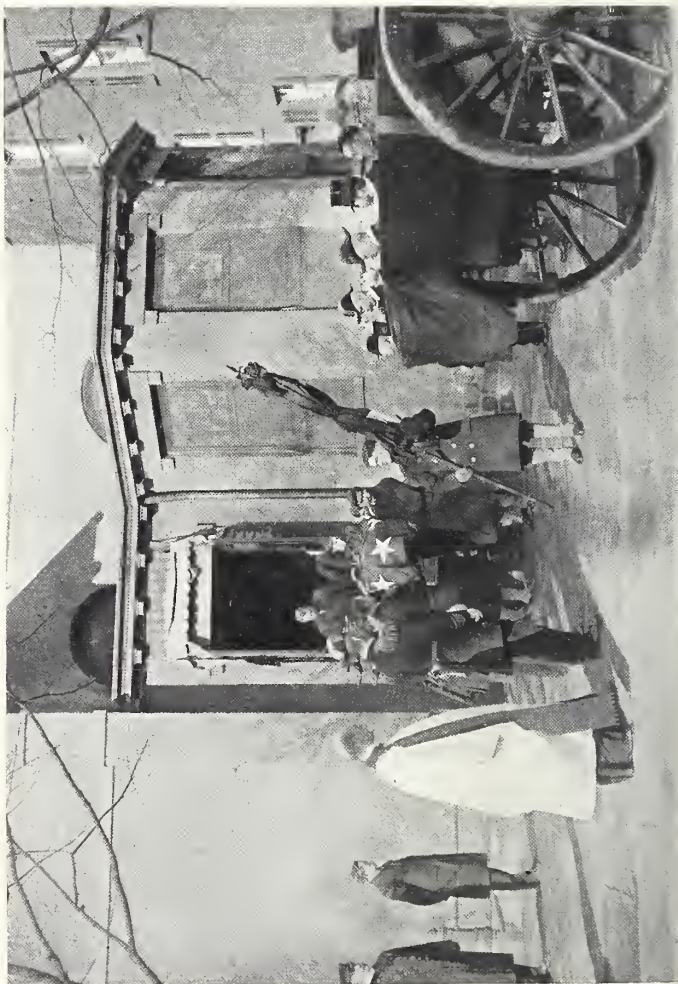
It has been pointed out that the photographer who essays the sale of negatives or prints for publication should, in justice to his own interests as well as those of his patrons, take due cognizance at all times of the value of the exclusive photograph as compared with the non-exclusive. Another factor that will be found to have important bearing upon the interests of the photographer is involved in the terms of payment obtaining in the case of photographs sold for reproduction. Two different systems are in vogue in the United States, namely "payment upon acceptance" and "payment upon publication." To the uninitiated the difference in the two phrases may convey hint of very little inequality; in actual practice, however, the contrast between the two systems is of the utmost significance to



The Tomb of George Washington at Mount Vernon

An example of a subject having perennial interest. The negative of such a subject has permanent value

By Waldon Fawcett



The Funeral of a Rear Admiral of the U. S. Navy

the photographer who is dependent wholly or partially for his income upon the pictures sold for publication.

Payment on Acceptance The plan of payment upon acceptance is just what is indicated by the term. It means that the photographer receives the money due him for a photograph when that photograph is accepted for publication, or within the customary interim of thirty days following the date of such acceptance. These terms, it will be observed, are the same as obtain almost universally in the commercial world, and are the only equitable ones consistent with clean business practice,—and don't let us forget that art is plain business when it comes to the financial part. Practically all book publishers, art publishers, calendar manufacturers, post-card manufacturers, etc., accord terms of payment upon acceptance, or payment upon delivery as a matter of course. So, likewise, in more recent years do virtually all of those publishers of periodicals that one finds classed in the commercial directories as "prominent and responsible."

Payment on Publication The plan of "payment upon publication" may be said to be obsolete nowadays, except in the case of a certain section of the periodical press which is growing smaller year by year but is yet much larger than it ought to be. Payment upon publication means that payment for photographs will be made only upon the actual issuance of the number of the periodical in which said photographs are reproduced,—or, as some especially thrifty publishers insist, upon the first or the tenth or the fifteenth of the month following such actual publication. It will be observed that the term payment upon publication is an extremely elastic one, for, whereas a photograph may be accepted for publication, it is seldom that any assurance is given as to when publication will be made. It goes without saying that if a publication suspends in the interim between the acceptance and the publication of a photograph the photographer loses. He is likewise a sadder and a wiser man if a periodical changes hands (with no transfer of obligations), makes an assignment, or gets into financial difficulties, while he is patiently awaiting the appearance of his cherished

contribution. A change of ownership in a magazine, such as has just been referred to, holds possibilities of yet another form of disillusionment for the photographer, inasmuch as, under such circumstances, accepted but unpublished photographs may be reconsidered, rejected, and thrown back on his hands after their interest or timeliness has lapsed, and he will have no redress that is worth the candle.

Even granted that a periodical is as solid as the Rock of Gibraltar, and that publication and consequent payment are as sure as death and taxes, the plan of payment upon publication is an imposition upon contributors. I know of instances where contributors have been obliged to wait one, two, and even three years, for publication and payment, and all the while there is upon the contributor the onus of keeping tab upon the contents of each successive issue of the periodical concerned in order to check up photographs when they do finally appear. All contributors, writers as well as photographic illustrators, who have had any considerable experience are unanimous in the denunciation of "payment upon publication" as a most iniquitous practice; but some of the benighted publishers, unfortunately, go on the theory that might makes right.

How to Submit Photographs There are four different methods of offering, or submitting, photographs for publication. All four of the plans are applicable to the various classes of markets open to photographic subjects, and the choice of a method to be followed by a photographer usually depends, aside from personal preference, to some extent upon the character of the pictures offered for sale, the location of the photographer, and the location of the publishing firms that it is sought to interest in the pictorial material. It is readily conceivable that it would be the part of wisdom for a photographer to follow one procedure at one time and another at a different time, adapting his methods to individual circumstances.

Personal Work First: In the category of marketing methods is the plan of submitting the photographs in person. This plan is followed to a considerable extent in London, and in

some measure in New York, but, on the whole, it is probably the least-used plan. It has the advantage from the standpoint of the editor or publisher, that he is not put to the inconvenience of unwrapping and wrapping packages of photographs, and, from the standpoint of the photographer, that it enables the closing up of a transaction in short order if a patron can be induced to make his selections of photographs at once,—something that is not always possible. On the other hand, many editors and publishers are opposed to the plan because they are averse to being interrupted by callers at any and all hours, and would much prefer to have packages of photographs accumulate on their desks, to be considered when they are ready to take up such matters. For the photographer the plan possesses the disadvantage that it is obviously a time-consuming and more or less expensive mode of marketing. If the photographer is not located in or near some publishing center, such as New York City, a personal canvass of the publishing houses will involve no little outlay, and obviously no photographer would be justified in undertaking it unless he had a considerable number of pictures to offer.

Selling Agencies Second: In the list of marketing tactics is the scheme of disposing of your photographs through an agent or broker, located in any large publishing center. The plan is almost identical in its workings with that of the literary agents who endeavor to place the fiction and other writings of authors, known or unknown. The photographic agents will usually offer photographs to the publishing houses at any prices set by the photographer, but, in some instances will give advice as to the prices to be asked where a photographer is inexperienced or is in doubt on this point. Under the plan most extensively in vogue, the agent derives his sole profit from the transaction in the form of a commission on the photographs sold. In some instances such representation can be had on a basis of 10 per cent, but a more usual rate of commission is 25 per cent. That is, an agent, after placing photographs for publication and collecting the money, reports to his photographer-client weekly or monthly, as agreed upon, and remits the amount due him after deducting one-

quarter of the gross receipts. There are some agents who demand an advance fee of a dollar or two from the photographer with every consignment of prints, and this fee for "expenses" is retained whether any sales be made or not. A majority of photographic illustrators of experience do not take kindly to such an exaction.

There is a second class of agents or **Brokers** photographic brokers who operate on a somewhat different basis. Instead of merely receiving photographs "on consignment," to be held in stock until sold or until the photographer asks their return, these brokers give prompt consideration to every photograph submitted, and purchase outright such as appeal to them, paying cash therefor. Since the proposition is a quick turn-over for spot cash, and the purchaser takes all the risk of selling publication rights and collecting his fees from the publishers, it may readily be surmised that the broker expects to purchase his photographs at much lower prices than the photographer would receive from the publishers, considerably lower, even, than the net returns received from an agent after the latter has deducted his commission under the speculative plan of selling "on shares." If a broker makes outright purchase of a considerable number of prints at one time, he will expect yet more favorable concessions in price. The plan is one likely to appeal only to those photographers who like to realize quickly on their products, or who have not the time or inclination for the more tedious plan of marketing direct.

These brokers, and likewise some **Buyers of** photographers for publication who desire to expand their operations beyond their own capacities in picture-making, often purchase original negatives in preference to photographic prints. In fact, some of them confine their purchases to negatives, and purchase photographs (from which copy negatives will in most instances have to be made) only when an original plate is utterly unobtainable. The prices paid by these middlemen for negatives may appear to the uninitiated, at first acquaintance, shockingly low. Perhaps the price offered for an original negative may be no more than the photographer would

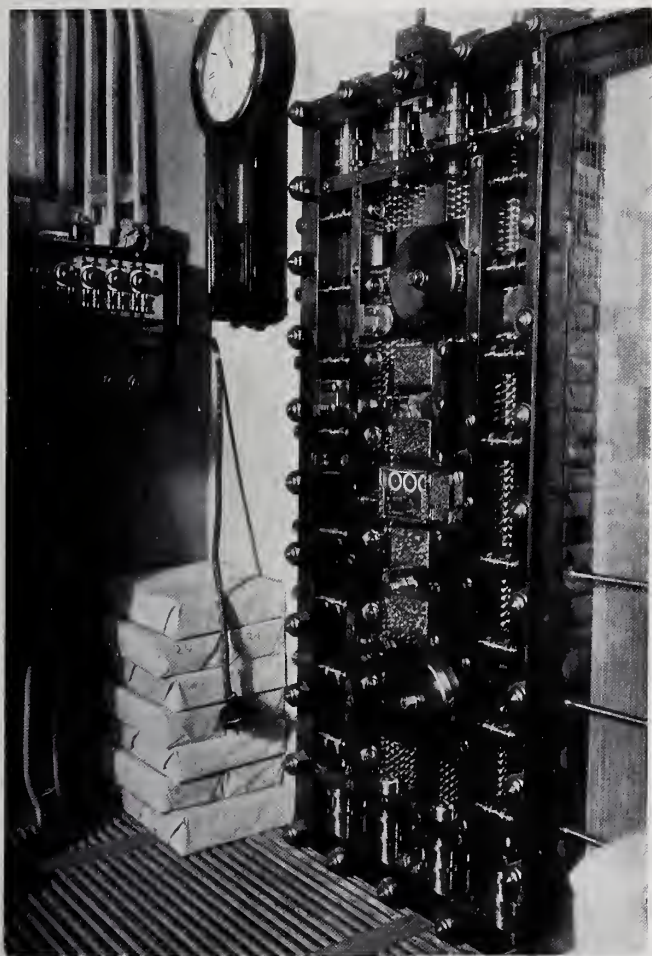
obtain from the sale of one print from the negative if he were able to sell it to some leading magazine or periodical. The argument, however, is the same as that advanced in the case of the brokers who purchase photographs outright. The negative buyer ties up his money in a long-time speculative proposition, fraught with many risks. To be sure, he may sell half a dozen prints from some one negative thus acquired; but there will be other plates from which he will never be able to sell so much as a single print. However, it is probably human nature for the case of the six prints from one negative to rankle with the producing photographer, and the loss on the unused negatives to be entirely overlooked. The buyer of negatives is fortified in his position by sound business logic, but unless the maker of negatives can look at the situation in that light, it will be better for his peace of mind that he retain possession of his plates and try his own hand at finding a market for the prints.

Offering Prints by Mail Third: Among the measures for bringing photographs to the attention of editors and publishers is that of submitting the pictures uninvited, but dispatching them by mail or by express, instead of proffering them in person. This is perhaps the most extensively followed of all the methods of gaining the editorial eye. Some photographers, unfortunately for their own interests and the patience of editors and publishers, seem to pursue a harum-scarum, hit-or-miss policy of submitting photographs promiscuously, without apparent regard for the specific needs or the policies of the publishing houses approached. Such a method, equivalent to firing at random, cannot be too severely condemned in the interest of the photographer. No wise photographer will submit photographs to any periodical or publishing house without having first become somewhat conversant with its prejudices and preferences, as indicated by the photographs which it has reproduced in the past. The universally applicable advice "study your market" means in this field: study the periodicals, books, art products, etc., to which you are ambitious to contribute. The most superficial scouting of this kind—on news-

stands, in bookstores, at periodical reading-rooms and in public libraries—will prevent such absurdities as the submission of photographs of a boxing-match to a religious magazine, or the proffer of pictures of the packing industry to a vegetarian journal.

Getting Prints Returned In the case of pictures submitted solely on the initiative of the photographer, without solicitation on the part of editor or publisher, it is doubtful if the recipient is under any legal obligation to return the subjects in the event that he does not desire to purchase. However, editors and publishers are proverbially good-natured in this respect, and will almost invariably return unavailable prints if a stamped and addressed envelope is enclosed with the pictures. At the same time, a photographer who has thus submitted his work uninvited cannot consistently scold an editor if he takes his own time about returning the offering. Some newspapers and other periodicals keep standing at the head of their editorial columns a notice to the effect that they cannot undertake to return unavailable illustrative prints. Most photographers will wish to fight shy of these houses.

News Pictures Before proceeding to consider the plan of submitting photographs upon invitation, it should be explained that there is one section of the market and one class of photographs in the case of which it is well nigh imperative to use the method above described,—namely submission without specific permission or invitation. The photographs that demand such treatment are the pictures of news events of more than local interest, such as great fires, important train wrecks or other disasters, national sporting events and athletic contests, notable public ceremonials, such as church dedications, corner-stone layings, monument unveilings, etc., and social happenings, weddings, etc., of country-wide significance. Likewise pictures of persons and places suddenly brought prominently into the public eye by unanticipated current events,—the man who has just perfected a valuable invention, the woman who has fallen heir to a great fortune, the site selected for a costly new public building, the well-nigh forgotten birthplace of a “man of the hour,” and a hundred other



The Electrically Operated and Electrically Protected Door of the New Currency Vault at the U. S. Treasury, Washington, D. C.

A specimen of a class of photographs for publication, where detail and definition are important requirements

By Waldon Fawcett



President and Mrs. Taft

A typical "snapshot" of people in the public eye, suitable for newspaper and magazine use

possible spur-of-the-moment pictures. Such photographs of fleeting interest find their chief market in the newspapers, the illustrated weeklies, and those monthlies which specialize on current events, as do the *Review of Reviews*, *The World Today*, *Current Literature*, the *World's Work*, etc. It is of the utmost importance to get such timely subjects into the editorial offices without a moment's delay. If a photographer waits to inquire by mail or even by telegraph as to the editor's willingness to consider the subjects, it may be too late to "catch the edition," consequently the preferred course is to dispatch the pictures without parley, attaching a special delivery stamp to speed the package to its destination.

**Submitting
Prints by
Consent**

Fourth, and last of the methods for placing publication photographs on the market, is that of submitting the pictures only after the consent of the editor or publisher to receive them has been secured as the result of preliminary correspondence. In some respects this is the most ideal of all the plans now adopted, although there are, as just explained, certain circumstances where it is disadvantageous if not impracticable for the photographer to employ it. Under ordinary circumstances, however, the precaution of preliminary correspondence precludes the possibility of the proffered prints being not only uninvited guests but also unwelcome guests. It doubtless saves time for both the editor or publisher and the photographer, and it certainly saves money for the latter—the expense for the postage and packing of useless submissions, to say nothing of the possible damage to photographs in transit.

**Seeking
Prospects**

Under this plan, it is customary for the photographer, as the first step in the transaction, to address the editor or publisher whom he regards as a good "prospect," inquiring as to whether he would care to consider a photograph or series of prints of such and such a subject. He may, if he so desires, go into some detail as to the character of the subjects, and it may aid the editor in framing a reply if the photographer advises in this initial letter as to the size of the photographs and the price asked,—provided the photographer is not willing

to leave that to the generosity of the buyer. If the reply to such an advance be favorable, the photographs can then be sent forward for inspection and selection. If, on the other hand, the editor or publisher replies that the offering does not interest him, the photographer is free to seek a market elsewhere without delay. The plan has another advantage in that it protects the photographer against expense and loss of time because of conditions of which he could not possibly have any knowledge. The photographer may be unerring in his judgment as to the periodical or publishing house which, from its general policy or current needs, would seem to be the most likely purchaser for the photographs which he is seeking to dispose of, and yet there may be special reasons why it would be a fruitless quest to send the prints there. The editor or publisher may have just purchased similar photographs elsewhere; he may be overstocked with material, and in consequence has suspended all purchasing; the price may be too high; or any other one of a dozen unforeseen exigencies may close temporarily to the photographer what would appear to be a promising market. If any such situation does exist, it is likely to be disclosed as the result of the preliminary correspondence, and the photographer is saved in some measure from false hopes.

Mail and Express Charges Photographs not submitted personally are usually dispatched to editorial offices and publishing houses by mail or express. The prompt and dependable United States mail is most emphatically the preferred mode of transportation, although it must be explained that the express companies quote a special tariff to "professional photographers" which virtually eliminates the inequalities of cost that would exist were the regular express rates enforced. However, in order to take advantage of this special express rate, which is just about equivalent to the rate for third-class postage, the photographer must waive some measure of that insurance against loss which is usually one of the chief arguments of the advocates of express transportation. In order to secure the special express rate, a photographer is limited to ten dollars as the maximum valuation to be placed upon

any one package. This means that, in the event of the loss or destruction of a package when in the hands of the express company, the sender is not entitled to claim damages to the amount of more than ten dollars, no matter what be the actual value of the photographs contained in the parcel. Many photographers are also of the opinion that photographs sent by express should be packed more carefully than is necessary in the case of pictures to be transmitted by mail. This brings us to the subject of the packing of photographs, and it is an unmistakably important one to the photographer who sends many pictures up and down the world in quest of buyers.

How to Pack Prints

There are two approved methods of packing photographs. One involves the placing of the prints flat, between protective boards, the other the rolling of the prints inside or outside a tube of metal or pulpboard. Most of the photographers who mail prints, and most of the editors and publishers who receive photographs for consideration, prefer the method of transmitting the pictures flat. To be sure, in the case of large prints—say anything larger than the 8 x 10-inch size—there may be more danger of breakage in the mails when the prints are sent flat, owing to the unusual area of the package; but this problem of how to transmit large prints is not an acute one, for the reason that the large print in publication work is rapidly becoming, if not obsolete, at least unnecessary. Even the 8 x 10-inch size, which was for years the standard in this field, has given way to the 5 x 7-inch as the most popular dimension, and, in these days of improved apparatus for enlarging in the photo-engraving departments of our publishing houses, editors and art directors are in most instances well satisfied with not merely the 5 x 7-inch size but also the 4 x 5-inch size, and even the $3\frac{1}{4} \times 5\frac{1}{2}$ -inch size if only the subject be clear, sharp and distinct in the highest degree. Indeed the present-day attitude seems to be: better a small print with supreme definition than a large photograph blurred, indistinct or out-of-focus. This opens the field to all users of small cameras provided they have a good lens equipment.

**Prints in
Rollers**

The plan of rolling prints has some advantages, and is preferred by a minority of photographers. For one thing, the expense for postage is less, and where large numbers are to be sent to different addresses the packing can be done more expeditiously, especially if the precaution of passing a string through and around the tube is dispensed with, and the prints are kept in the tube by tucking in the margin or overhang of the enveloping wrapper provided for the address. Or, if a string is used to hold the prints in the tube, the busy photographer can save time by not using any wrapper around the tube, but merely pasting an address label on the outside, or writing the address on the tube itself if it has a writing surface. The great disadvantage of placing photographs in a tube for transmission is that the editor or publisher who receives them will have his own troubles in trying to get the curl out of the pictures,—and it is obviously not wise to make unnecessary work and annoyance for a prospective patron. The prints may be given the backward curl (which is less objectionable) by rolling them outside instead of inside the tube; but here comes the danger that a careless office boy in the receiving office—unaccustomed to this innovation—will slit not only the wrapper but the prints themselves, in his haste to cut away the covering and release the prints supposedly on the inside of the tube. All rolling of prints for transmission in or on tubes has the further disadvantage that there is danger of cracking the glacé surface of the glossy prints, which are now used almost exclusively in photography for publication.

If tubes are to be used, the utmost precaution should be taken to secure heavy, strong tubes, for if there is any sad spectacle it is that presented by photographs that have met disaster in a flimsy tube crushed in the mails. But for that matter, ample protection should be afforded for all photographs in transit. This is a matter in which too many photographers pursue a penny-wise and pound-foolish policy. Of course, double-weight corrugated board and extra-heavy manilla envelopes cost money, but they do not cost so much as photo-

HOLY BIBLE,

CONTAINING
THE OLD AND NEW

TESTAMENT:

WITH
ARGUMENTS

RELATIVE TO THE DIFFERENT SECT,
AND MORAL AND DOCTRINAL

OBSERVATIONS
EXTRACTED FROM SCRIPTURE,

AND

BY
ANDREW MARSHALL, PROFESSOR OF DIVINITY,
IN THE UNIVERSITY OF CAMBRIDGE.

PRINTED BY J. STURGEON, ST. JOHN'S LANE, LONDON.

The Lincoln Family Bible, Most Highly Prized of all the Relics of Abraham Lincoln
An example of a historical subject made for book illustration, but available for many other classes of publications
By Waldon Fawcett

graphic paper, chemicals, and the labor of finishing prints. Moreover, it is not only the danger of total ruination that threatens the insufficiently protected photographs in transit. There is an almost equally serious menace in the liability of inadequately packed prints to arrive at their destination creased and cracked, owing to the folding or bending of the package, punctured from the blow of the stamp-canceling or postmarking machine, or frayed at the edges because the packing boards had no margin over the size of the prints. An editor or publisher is excusable if he is prejudiced from the outset against such dilapidated photographs, and many otherwise acceptable pictures have been rejected simply because they were received in hopelessly damaged condition.

"First-Class" Mail Advantages The writer is tempted to make the radical recommendation that the first-class mails be used for the transmission of photographs designed for publication.

Photographs may be transmitted by third-class mail, which costs only one-fourth as much as letter postage, but this is an example of a saving that is not always economy. For one thing, the first-class mail receives more careful handling and is transmitted and delivered more expeditiously, which is sometimes a consideration. Secondly, the first-class packages can be sealed, which minimizes the danger of the loss of the contents in transit. Thirdly, if first-class postage rates be paid, the photographer can enclose with his prints any writing that may be desired,—a bill or statement, a letter of transmittal, or the manuscript of an article, if the photographs are being submitted in connection with descriptive text. Yet more important, the photographer is by this means enabled to place upon the prints written titles or captions as full and complete as may be desired; and this is a distinct advantage, inasmuch as most editors and publishers have a weakness for detailed captions that fully explain the subjects.

At third-class postal rates, on the other hand, only "simple titles" are permitted on the photographs, and here is the rub. The decision as to what constitutes a simple title is presumably left to the postmaster at the

point of origin,—that is the town or the city where the photographs are mailed,—and these various local postmasters do not always agree by any means as to their interpretation of the postal regulations. Packages of prints sent at third-class rates must of course be unsealed, and the postmaster is at liberty to open the package to ascertain whether the sender has observed the ban against unnecessary writing. Occasionally the rewrapping of the parcel is not done quite so carefully as it was originally, and the prints suffer. Worse yet, if the postal inspector concludes that the titles on the pictures overstep the limits and are classable as “communications,” he will put the parcel into the first-class category, and the package will arrive at its destination with a “postage-due” penalty to the amount of double the deficiency of the postage. It can be imagined that the editor or publisher is not pleased by the necessity of paying a postage-due assessment upon photographs, particularly if he has not invited their submission. Photographers who do desire to mail at third-class rates will do well to try to be on the safe side by limiting their titles to a single word each, or merely the proper name in the case of a portrait or a geographical subject. Or better yet, the photos may be numbered and corresponding titles sent by letter post; but, of course, this makes some trouble for the editor or publisher.

Finally: It may be added that the mailing of photographs at first-class rates involves no burdensome expense, particularly if the photographer is putting out prints in the 5 x 7-inch and smaller sizes, for it is, of course, understood that virtually all photographs designed for publication are submitted unmounted,—most editors and publishers preferring them in that form,—and this reduces to a minimum the weight of the parcels of pictures. Photographers submitting subjects for publication will do well to use liberally two valuable postal facilities—the registry and special-delivery services. The latter hastens the delivery of the package that it is desired to rush to market, and the former insures care in handling and the reimbursement up to the limit of twenty-five dollars for actual loss incurred through the disappearance or destruction of any package while in

the hands of the postal authority. The fee for registry has been advanced in late years from eight to ten cents; but, inasmuch as the first-class postal rate will presumably decrease as time goes on, there is no prospect of hardship for the photographer on this score, even though he sends all his offerings by letter post.

All photographs submitted for reproductive purposes should bear the imprint of the photographer, for purposes of identification. The approved and almost universal method of marking is by means of a rubber-stamp imprint upon the reverse of each print. Of course, if mounted prints are sent out, engraving, embossing, or any other of the standard methods of marking the regulation mounts may be relied upon; but, as has already been explained, prints for publication are preferably sent out unmounted. Some photographers make a practice of "working in" their name and address, and perhaps the title of the picture, in the original negative, in such manner that the inscription appears as a part of every print taken from the negative in question; but many editors and publishers who do not desire to give credit to the photographer in such conspicuous manner rather resent this practice, inasmuch as it puts them to the necessity of either cutting off the offending lettering (something that is not always practicable without curtailing or marring the photographic subject), or else of "painting out" the inscription ere the photograph is prepared for reproduction in the engraving department of the publishing house.

The Right Rubber Stamp As has been said, the rubber stamp, preferably of the cushion pattern, is the best medium for marking photographs, and, in the interest of convenience, the photographer will do well to obtain a stamp of such dimensions as to permit its use on all the sizes of prints he may intend to send out. It is of great importance, too, in ordering rubber stamps for use on unmounted prints, that it be specified that all the lettering shall be in the "light face" type. The letters may be of good size, if desired, but they should invariably be of the skeleton pattern, rather than the bold face or "block type" affected by so many

rubber-stamp manufacturers. The latter has the advantage that it is conspicuous, but it has the overshadowing disadvantage that the excess of ink deposited is liable to soak through a thin print, or at least to cause a shadow in the high lights, when the print is adjusted for reproduction in the engraving room. Quick-drying ink will be found a convenience when photographs are to be stamped and immediately packed for mailing.

About Copyright If a photograph is copyrighted, the print should bear not only the rubber-stamp imprint of the name and address

of the owner, but also notification that it is copyrighted, with such other announcement as may be needed to indicate the conditions governing its use. In order not to seemingly put the cart before the horse, a few words may be said just here regarding the mooted question of whether to copyright or not to copyright. This is a problem which, from time to time, perplexes every photographer who makes pictures for publication, and to give advice on the subject is as difficult as to suggest the proper age at which people should marry. In the former, as in the latter, circumstances alter cases; it is useless to attempt to lay down hard and fast rules; and the question is one which every person must decide for himself. Happily, the matter of copyrighting photographs is not one that need be settled for once and all. A photographer may deem it wise to copyright certain photographs and not to copyright others, and his judgment be manifestly wise in each instance. Indeed, there are almost no photographers for publication who copyright all the negatives they make. Even those firms or individuals whose general policy is to copyright almost everything make exceptions in the case of rather commonplace subjects, such as the exteriors of ordinary buildings (pictures to be duplicated without trouble by anybody armed with a camera), subjects likely to have a very limited sale, and of only momentary interest.

Expense The expense of copyrighting is a small item if one copyrights only an occasional individual subject, but the outlay mounts up if extensive series of photographs are copyrighted. There is not only the fee of fifty cents for each copy-

right entry, but there is the further expense of printing the two copies of each photograph—and they must be mounted—which have to be deposited in the Library of Congress at Washington. If the photographer who copyrights a subject desires a certificate of copyright,—that is a formal acknowledgement of his entry,—he must remit an additional fifty cents in the case of each subject. However, most of the photographers for publication do not ordinarily pay for such certificates. There is no object, inasmuch as they can be obtained at any time, and since they are not likely to be needed unless a photographer desires the certificate as evidence of his copyright protection.

Copyright Law

The new copyright law passed a few years ago has resulted in considerable improvement of conditions for photographers who desire to copyright their productions. Under the old law, a photographer infringed the letter, if not the spirit, of the law if he sent out a photograph for publication ere the granting of his application for copyright. Of course, this produced all sorts of inconvenience in the case of "news pictures" and other subjects of timely interest. The new law does away with all this trouble by making it unnecessary for the application for copyright to be filed prior to publication. On the contrary, publication (carrying the regulation notice of copyright—"Copyright by ———")—is an essential preliminary to the filing of a copyright claim, and the photographer is allowed thirty days after the publication—that is the published reproduction of his photograph—in which to complete the formalities of copyrighting by sending to Washington the fee of fifty cents per subject and the two prints for deposit in the Library of Congress. Another boon conferred upon photographers by the new law is that it permits the use of the capital letter C enclosed in a circle in lieu of the full word "copyright" in conjunction with the name of the firm or individual copyrighting the picture.

Copyright Protection

Whether or not a photographer for publication makes a practice of copyrighting, there are likely to be instances when he will desire to thus invoke Uncle Sam's protec-

tion, and accordingly he will do well to keep on hand a few blank copyright applications, which may be obtained free of charge, together with full printed instructions as to the method of making out a copyright application, by addressing the Register of Copyrights, The Library of Congress, Washington, D. C. Or the reader can join the Photographers' Copyright League of America and get the benefit of its experience and guidance for a nominal sum per year. Address W. H. Rau Photographer, Philadelphia, for particulars.

Thus every print from a copyrighted negative that is sent out to editors or publishers, or, for that matter, to anybody else, should bear on the reverse in conspicuous form the line "Copyright by ———." Many photographers also place this line on the face of each print, either by the use of a seal press which embosses raised letters, or else by introducing the words in the deepest shadows of the original negative through writing with a sharp steel instrument in the emulsion; affixing the tiny metallic letters which are provided for this specific purpose; or imprinting on the emulsion side of the negative with a rubber stamp, using a special grade of ink and coating the inscription, ere the ink dries, with a bronze powder. The effect, whichever of the three expedients be employed, is to display the copyright line in white letters on a black or deeply shadowed surface in each print made from the negative thus titled. It is a very effective scheme of proclaiming copyright, but is objected to by many editors on the ground that it defaces the print,—the same objection that lies against the employment of this same means for titling negatives as above cited.

The mere appearance of the regulation copyright line on a photograph should in itself constitute a warning against unauthorized reproduction, and it has such significance for all experienced editors, publishers, engravers, etc. However, in order to make assurance doubly sure, and to take no chances with the inexperienced public or that rarity, the unscrupulous publisher, many photographers take the precaution to supplement the regulation copyright line with rubber stamp impressions, warning against reproduction of the photograph

"without written permission," or its use by other than the one firm or publication to which originally sold. Some photographers even imprint on the reverse of each copyrighted photograph a formal copyright license with blank spaces to be filled in with the date and the name of the firm or publication to which authority for reproduction is thereby granted. While on the subject of the forms of the notices appearing on photographs, it may be mentioned that some photographers are, with amazing and amusing assurance, placing upon not only their copyrighted but also their uncopyrighted photographs a mandatory message to the effect that each such photograph is sold only for the use of the original purchaser, "and must not be copied, syndicated, transferred, loaned, or resold." Of course, any such stipulation, alike to the kindred injunction which usually accompanies it to the effect that "credit must be given" to the photographer in reproducing his work, is, to resort to slang, "pure bluff," in the case of uncopyrighted photographs.

Of course, a photographer who has duly sold and received pay for an uncopyrighted photograph can no more control its future disposition than can the purveyor of any other commodity in the open market, and it is as absurd for him to attempt to prohibit its transfer as it would be for manufacturers in other lines to attempt to stop the sale of second-hand typewriters or second-hand automobiles or slightly used pianos. To me the use of such warnings on uncopyrighted photographs seems an insult to the intelligence of purchasing editors and publishers, but the photographers who employ this ruse justify their action by pointing to cases where purchasers, ignorant of their rights, have religiously observed the injunctions placed upon them. If a photographer wishes to control the use of his subjects, he must go to the expense of copyrighting them. I don't say, mind you, that the increased sale of prints from any given negative will justify the trouble and expense of copyrighting the subject, but that is the photographer's risk. If he prefers to economize by not copyrighting, he must be prepared to see use made of his work in channels from which he derives no revenue. That does

not always happen, to be sure, for there are many courteous editors and publishers who make it a matter of principle to serve the interests of contributors by not allowing others the use of the original material purchased at first hand, but such safeguarding should be thankfully received by photographers as a stroke of good luck, rather than demanded as an inherited right.

Similarly, in the matter of crediting "Credit" for the the origin of photographs in publication, Photographer is the placing of the line "Photograph by———" underneath the reproduction. This insertion of a credit line is a courtesy which every photographer deeply appreciates; and perhaps he is just as much entitled to it as are the illustrators who work in pen and ink or oils or water-color; but, at the same time, it is futile for a photographer to demand such a concession in the case of uncopyrighted photographs. And, even in the case of copyrighted subjects, it sometimes happens that some person in a publishing house, upon whom rests the responsibility, forgets or neglects to insert the copyright notice, and there is nothing to do about it, for, like as not, the entire edition is run off ere the omission is detected. It should be mentioned, too, that there are certain publishing houses in the United States which never give credit to photographers—in fact have a rule against it. Some of these firms even object to introducing the credit line on copyrighted photographs, and carry this prohibition to such lengths that they have, on occasion, refused to purchase the productions of photographers who would not waive the exaction required by law—a waiver which, if made, might have invalidated all copyright protection for the future on the subjects affected.

I have mentioned the fact that full, complete and detailed titles or explanatory captions are very desirable in the case of all photographs submitted for publication. The caption is usually placed on the back of each photograph, and it is well to bestow some care to have is clear and legible, and at the same time to guard against any injury to the photograph itself. The usual plan it to pen the inscription or to write it in pencil, though an

increasing number of photographers typewrite the captions directly on the unmounted prints, or on slips of paper which are then attached to the photographs. The only objection to the use of pen and ink is the possibility that an excess of ink will show through on the face of a thin print. A soft lead-pencil, lightly handled, is unimpeachable; but, if hard lead is employed and the writer bears down on the pencil, the outline of the writing is very liable to be transmitted as ridges on the face of the photograph. This is particularly noticeable in the case of the glossy-surfaced prints, such as are preferred for reproductive purposes. Similarly typed captions are satisfactory if the typist strikes lightly upon the keys of the typewriter, but a pounding of the keys of the machine is liable to indent or even cut through the glazed surface of the prints. The only disadvantage of the caption typewritten on a separate slip and attached to the print is the danger that it will be torn off in the handling of the pictures in the editorial office or publishing house. The penciled caption or the pasted slip are preferred by many photographers to either of the other titling methods because of the extent to which they facilitate the changing of captions on prints—something desirable where the same pictures are submitted at intervals to different markets, under different conditions.

A survey of the field brings the impression that the future of photography for publication is very promising. There was some doubt, a few years ago, as to what influence might ultimately be exerted by the moving pictures which suddenly gained such tremendous vogue. However, the moving picture is but serving as another vehicle to cultivate and stimulate the love of the human race for pictures. It is safe to predict that so long as books and newspapers and magazines are published there will be need for photographs for illustrative purposes, and latterly it has been attested that there are many classes of subjects of illustration that cannot be so satisfactorily portrayed by any other medium—not even by the moving pictures. A development in this field, corresponding to current tendencies in the commercial and industrial world, is that which is marked by

the entry of heavily capitalized firms of photographers for publication and organizations aiming to cover the happenings of a country, or of many countries, photographically, just as the news-gathering organizations chronicle the doings of the world, reportorially. However, this is one field, happily, where the individual, if he be ingenious and resourceful and energetic, would seem to have little to fear from combinations. The field of photography for publication is so diversified ; it is so impossible to get a monopoly on talent ; and there is such a range for originality and individuality in effort, that it would appear impossible for any "trust" to prevent the success of the independent operator whose work is distinctive. In other words, the photographer who can produce "pictures that are different" is just as sure of a hearing as is the singer with a wonderful voice, or the inventor with a new labor-saving device. There is this difference, too, between the field of photography for publication and the other fields above mentioned. In the spheres of manufacturing and transportation the big corporation, by the lure of attractive salaries, enlists the services of the brainiest men in the business ; but in the field of photography for publication the photographer who will develop his knack as a salesman of his own pictures may make more money and gain more glory by "paddling his own canoe."

WALDON FAWCETT.

[See list of publications buying illustrative material given on the following pages.]

Publications Which Buy Photographs

The following list, while far from complete, gives the substance of the replies received from inquiries addressed to over a hundred of the principal publications of the United States. As a general rule, it may be said that every publication carrying illustrations in its pages is open to buy pictures available for its use. In submitting photographs, send all possible data with each print, and enclose postage sufficient for the return of the pictures if not used.

Agricultural Epitomist, New York, N. Y., buys prints of agricultural subjects; vertical compositions preferred. Any size; clear, sharp prints. Quote prices on prints.

American Agriculturist, New York, N. Y., buys prints of live stock, farm homes and agricultural subjects. Size 5 x 7; 6 x 8. Price paid, 50 cents to \$2 per print.

The American Boy, Detroit, Mich., buys prints of any subjects interesting to boys. Size immaterial. Price paid, \$1 to \$3 per print.

American Golfer, New York, N. Y., buys prints of golfing subjects. Size immaterial. Payment varies.

Architectural Record, New York, N. Y., buys prints of architectural subjects—exteriors, interiors, bits of detail, etc. Size 8 x 10. Price paid, \$1.50 to \$3 per print.

Century Magazine (Art Department), New York, N. Y., buys prints for illustration of articles in hand. Size immaterial. Payment varies.

Country Gentleman, Curtis Publishing Co., Philadelphia, Pa., buys prints of agricultural subjects, up-to-date farm buildings, etc. Size 6½ x 8½. Price paid, \$2 to \$10 per print.

Country Life in America, Garden City, L. I., N. Y., buys prints of outdoor scenes, fishing, camping, farm and garden work, country homes and interiors. Size 5 x 7 and 6½ x 8½. Price paid, \$1.50 and up per print.

The Craftsman, 41 West 34th St., New York, N. Y., buys prints of various subjects. Size immaterial. Payment varies.

Dodge Publishing Co., 220 East 23d St., New York, N. Y., buys prints and negatives of landscape and child studies. Size immaterial. Price paid from \$2 up per negative.

Engineering News, New York, N. Y., buys prints of technical interest. Size 8 x 10 preferred. Payment varies.

Farm and Fireside, Springfield, Ohio, buys prints of farm subjects; prints telling stories in themselves preferred. Size 5 x 7 and larger. Price paid, \$1 per print, unless photograph is unusual.

Farm and Home, Springfield, Mass., buys prints of agricultural subjects of a technical nature, fine live stock, farm houses and buildings. Size 5 x 7. Price paid, 75 cents to \$1.50 per print.

Farm Press, Chicago, Ill., buys prints of agricultural subjects. Any size. Price paid, 25 cents to \$2 per print.

Forest and Stream, New York, N. Y., buys prints of shooting, fishing and general outdoor subjects. Any size. Cover size must be multiple of 5 x 7. Payment varies.

Warren Dunham Foster, 120 Boylston St., Boston, Mass., buys prints for magazine and newspaper reproduction; subjects connected with household arts and better country living, or in any way connected with the movement for better living conditions in the small towns and open country, with the activities of women, particularly in the home; size immaterial.

The Fruit Grower, St. Joseph, Mo., buys prints of fruit and garden subjects. Size 5 x 6, or 6½ x 8½. Payment varies.

Green's Fruit Grower, Rochester, N. Y., buys prints of fruit, orchards, and farm home subjects. Size 1 or 2 columns. Payment varies.

Hollands, Dallas, Texas, buys prints of flowers, landscapes, home pets, and subjects of interest to women and children. Size preferred 8 x 10. Price paid from \$1 to \$3.

House and Garden, New York, N. Y., buys prints of garden architecture, flower details, planting, landscape subjects. Size 4 x 5 or 5 x 8. Price paid \$1 to \$3 per print.

Illustrated Review, Chicago, Ills., buys prints of genre and other subjects relating to music, suitable for covers, blotters, calendars, etc.; any size; price according to use made of print, subject, etc.

Independent, New York, N. Y., seldom buys prints except news photographs. In March, April and May need subjects available for illustration of special vacation number, for which cash prizes are offered.

Ladies Home Journal, Philadelphia, Pa., is always willing to consider photographs submitted to the editors for approval, and, if available for use in the *Ladies Home Journal*, will purchase at prices which vary according to the subject, the reputation of the photographer, etc.

Leslie's Illustrated Weekly, New York, N. Y., buys prints of news and odd subjects. Size 4 x 5 and larger. Price paid \$3 and up per print.

Life, Publishing Company, New York, N. Y., buys prints only of subjects likely to be of special interest to readers of "Life." Size immaterial. Payment varies.

Literary Digest, New York, N. Y., buys news photographs. Size immaterial. Price paid, \$2 to \$3 per print.

Metropolitan Magazine, New York, N. Y., except dramatic subjects, uses only photographs made to order. Size immaterial. Average price, \$3 per print.

Missouri Valley Farmer, Topeka, Kan., buys prints of live stock and agricultural scenes in the Middle

West. Postcard size preferred. Price paid, 25 cents to \$1 per print.

Modern Priscilla, Boston, Mass., buys prints only reproducing original patterns in different kinds of fancy needle-work, and photographs illustrating household articles. Size immaterial. Payment varies.

Motor Boat, New York, N. Y., buys prints of motor-boats in action, of scenes in which motor boats are prominent features. Size from 4 x 5 to 8 x 10. Price paid, \$1 per print.

Motor Cycle Illustrated, New York, N. Y., buys prints of motor-cycle subjects. Any size. Payment varies.

National Geographic Magazine, New York, N. Y., buys prints of sights in foreign lands, animals, nature, anything geographic. Size, not less than $3\frac{1}{4} \times 4\frac{1}{4}$ inches, larger size preferred. Very good prices paid, dependent on character and value of the picture.

National Farmer and Stock Grower, St Louis, Mo., buys prints of individual animals, live-stock companions. Size 5 x 7, unmounted. Price paid, \$1 per print.

National Sportsman Magazine, Boston, Mass., buys outing photographs. Size $3\frac{1}{4} \times 4\frac{1}{4}$. Price paid, 50 cents per print.

Nebraska Farm Journal, Omaha, Nebr., buys prints of farm scenes and live stock in Nebraska. Size 4 x 5 or larger. Price paid, 25 cents and up per print.

Outdoor Life, New York, N. Y., usually buys illustrations with its manuscripts.

Outing Magazine, New York, N. Y., buys prints of general outdoor subjects. Any size. Price paid varies.

Outlook, New York, N. Y., buys news, scientific photographs, etc., and portraits. Size 5 x 7. Price paid varies.

Recreation, New York, N. Y., buys prints of outdoor recreation. Any size, 5 x 7 preferred. Price paid, \$1 per print.

St. Nicholas Magazine, New York, N. Y., buys prints of juvenile subjects, and illustrations of special

descriptive scientific or nature articles. Size 8 x 10. Price paid varies.

Scribner's Magazine, New York, N. Y., buys prints of historical and geographical interest, portraits, sculptures and paintings. Size 8 x 10. Price paid, 20 cents to \$2.50 per print.

Walter O. Snelling, Ph. D., Pittsburgh, Pa., buys prints of explosives in blasting, farming, quarrying, etc., accidents from explosives, glass explosions, etc. Any size. Price paid, \$1 to \$3 per print.

The Star Farmer, St. Louis, Mo., buys prints of farm, stock and home subjects. Any size. Price paid varies.

Suburban Life, Harrisburg, Pa., buys prints of the house and its furnishings, flower and vegetable gardens, and of subjects of interest to suburbanites. Size 5 x 8. Price paid varies.

Sunset Magazine, San Francisco, Cal., buys prints of natural scenery. Size preferred 6 x 8. Price paid per print, \$1.

Technical World Magazine, Chicago, Ill., buys prints of inventions, engineering feats, odd and remarkable subjects of any kind. Large size preferred. Price paid varies.

Travel, New York, N. Y., buys photographs of travel interest all over the world. Size not smaller than $3\frac{1}{4} \times 4\frac{1}{4}$. Price paid, from 50 cents to \$1.50 per print, according to size reproduced. Payable on publication.

Yachting, New York, N. Y., buys prints of marine views, particularly of live pictures of sail- or motor-boats. Size 4 x 5 to 8 x 10. Price paid, \$1 to \$2 per print.

Notes and Comment

Artatone is a new printing-out paper (sensitized Japanese tissue) which gives striking tone effects by simple fixing in hypo, just introduced by Herbert & Huesgen, specialists in things photographic, 311 Madison Avenue, New York. Ask your dealer about it or, better still, send 30 cents to Messrs. Herbert & Huesgen, mentioning this note, and get a sample dozen sheets and try it on your favorite negatives. It will give you prints altogether different from any you have obtained on any other paper, revealing new possibilities in your negatives.



With this number **THE PHOTO-MINIATURE** completes its tenth volume, the series now comprising one hundred and twenty monographs dealing with over one hundred different phases of photographic activity. This is an awe-inspiring event, such as neither Mr. Ward nor myself dreamt of witnessing when we set out together on the adventure, in far away 1899. But all things come to him who will but wait—even **THE PHOTO-MINIATURE** No. 120! Let us, one and all, be encouraged. Meanwhile—

THE PHOTO-MINIATURE No. 121, ready August 20, will tell the great world how to get camera pictures of its children. There are so many children, everywhere (a new one every six minutes according to a recent computation of the increase in population in the United States), that the need of reliable information about photographing them is widespread and imperative. So, when I learned that Mr. C. H. Claudy, of Washington, D. C., had made over three thousand negatives of his one and only son, not counting his pictures of other people's children, I determined that the man and the hour had come for the making of such

a book about the photographing of children as would be worthy of the subject.

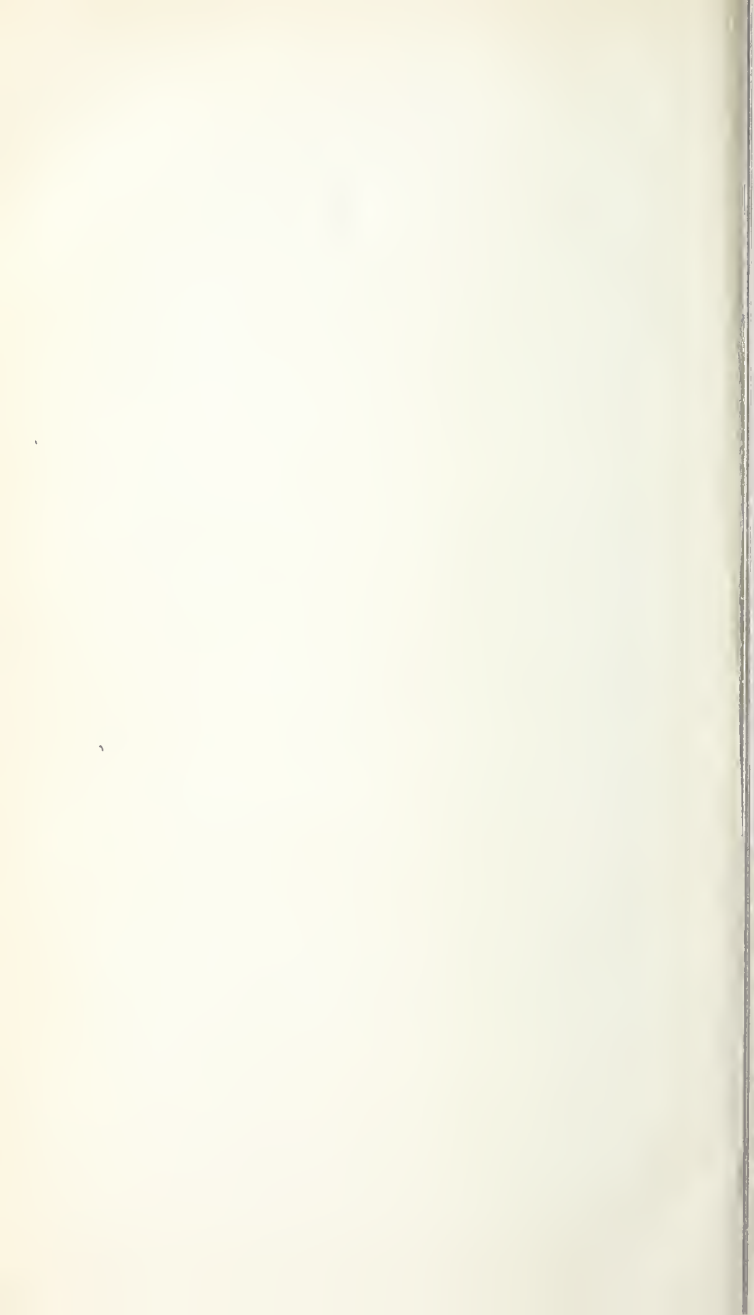
There is nothing "cut and dried" about either children or photographing them, as those who either have children of their own or have borrowed children and tried to make pictures of them will readily admit. And Mr. Claudy's book is as lively as one would expect it to be considering his experience in this special field. Imagine the sort of a book you could write if you had Mr. Claudy's training and survived to tell the tale. Get No. 121, and see all your dreams come true. Yes, the story is illustrated—from life.



From the last issue of *The Camera*, I learn the sad news of the death of Mr. Walter Zimmerman, which took place June 16. Mr. Zimmerman was well known as a pictorialist in this country and abroad, his skill in pigment (gum) printing being especially noteworthy. Less than a year ago, he gave to his fellow workers in photography, through these pages, a new and simple method of gum-bichromate printing which may fairly be said to revolutionize that process. Later he worked out a process of color photography which, as he advised me, completely solved this perplexing problem, but which is as yet commercially unknown. Apart from his hobby, he was a man of vigorous mind and lovable personality, eager to learn, and as eager to share his knowledge with all who sought his help.



Crowded out of this issue—the most remarkable chance to win a prize of £1,000 (\$4,850) for a set of 12 holiday photographs, open to the world. See *The Daily Mail* Competition, full particulars in Abel's new "Amateur Photographer's Weekly" which you can get for 5 cents from your dealer or Juan C. Abel, Cleveland, Ohio.



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